20ETTO" 8S89h00T

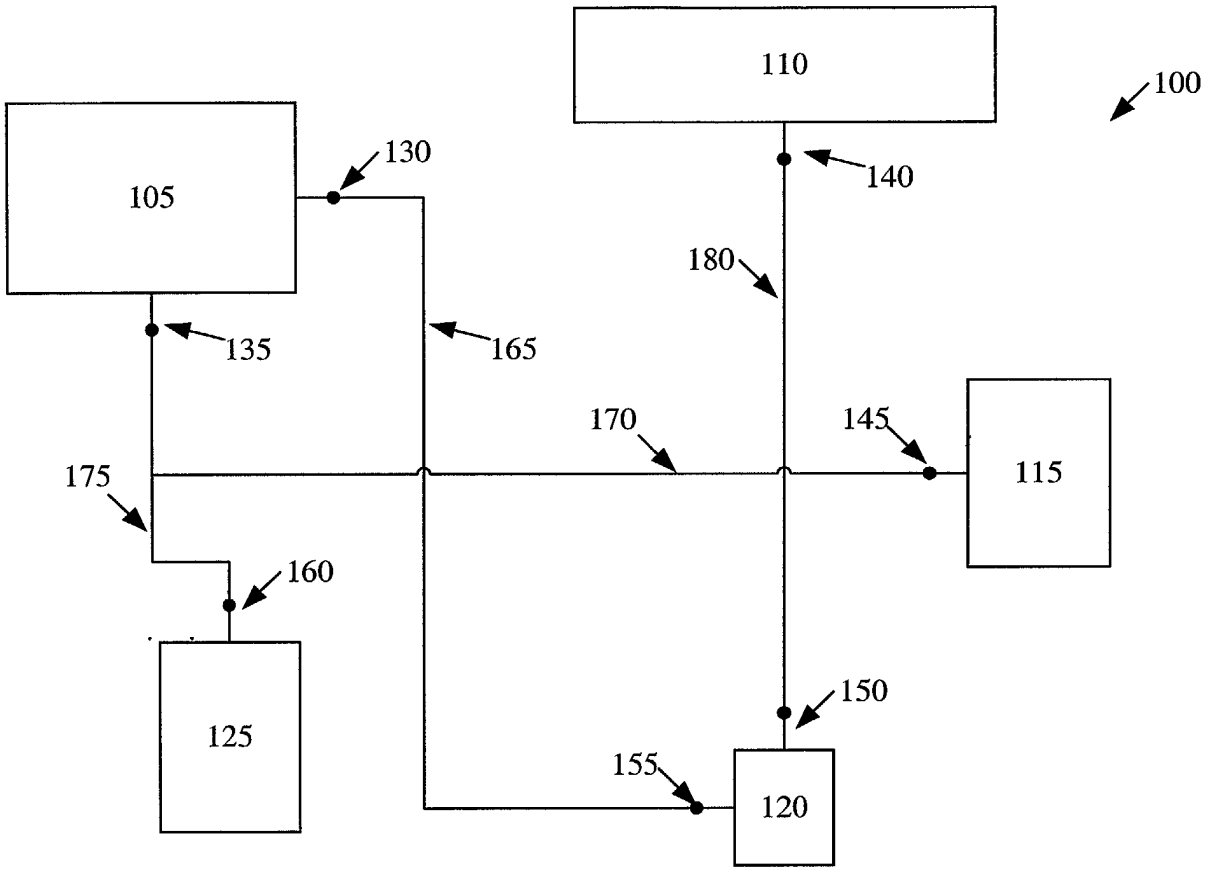

Figure 1

20ETTO 8589h00T

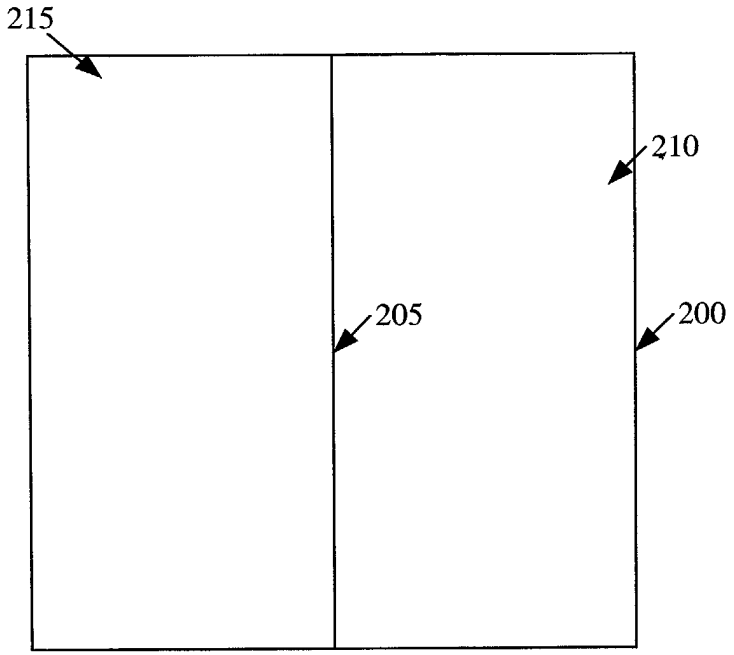

Figure 2

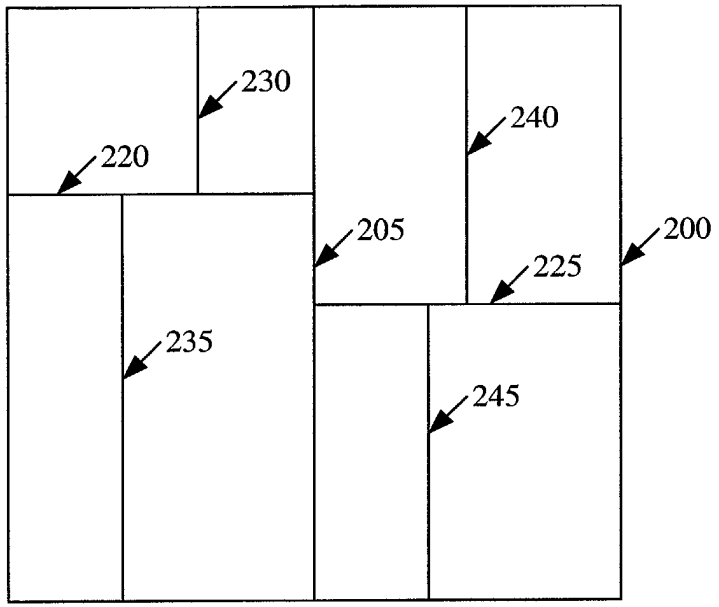

Figure 3

20070 8589h00f

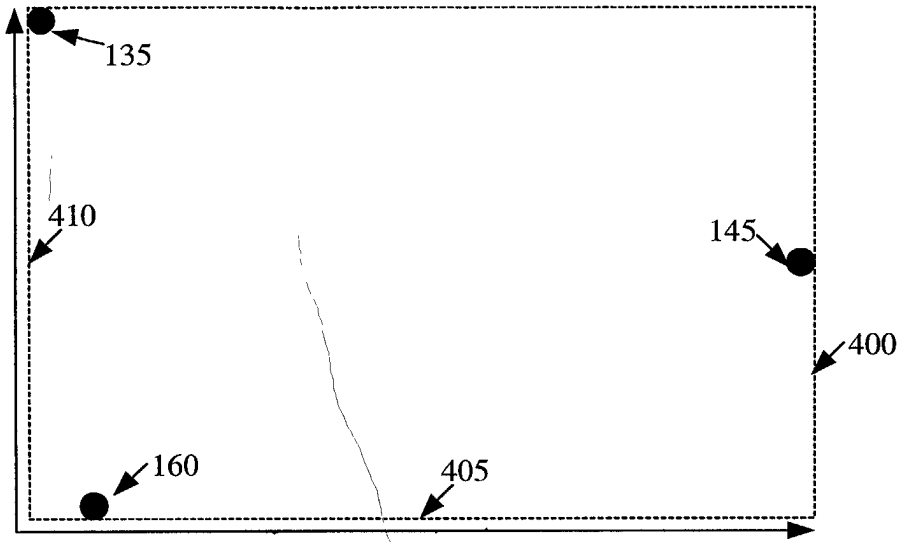

Figure 4

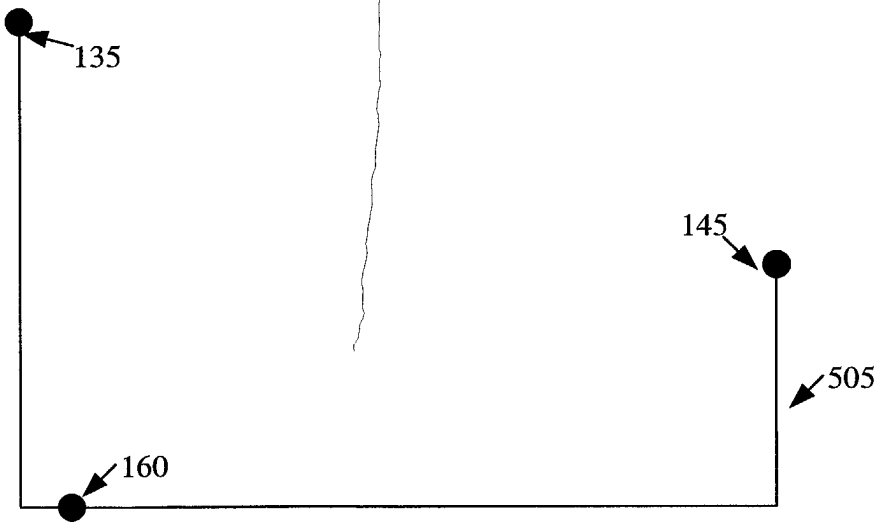

Figure 5

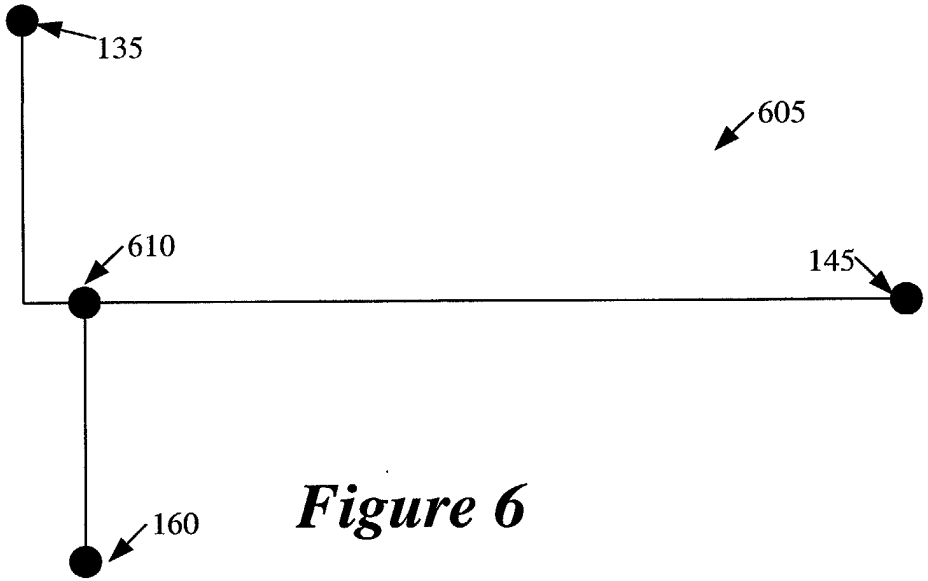

Figure 6

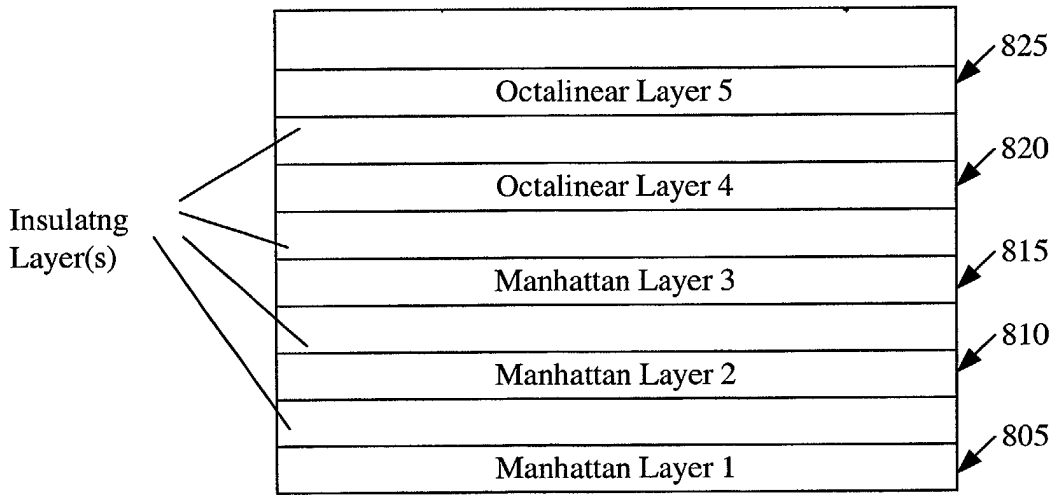

Figure 8

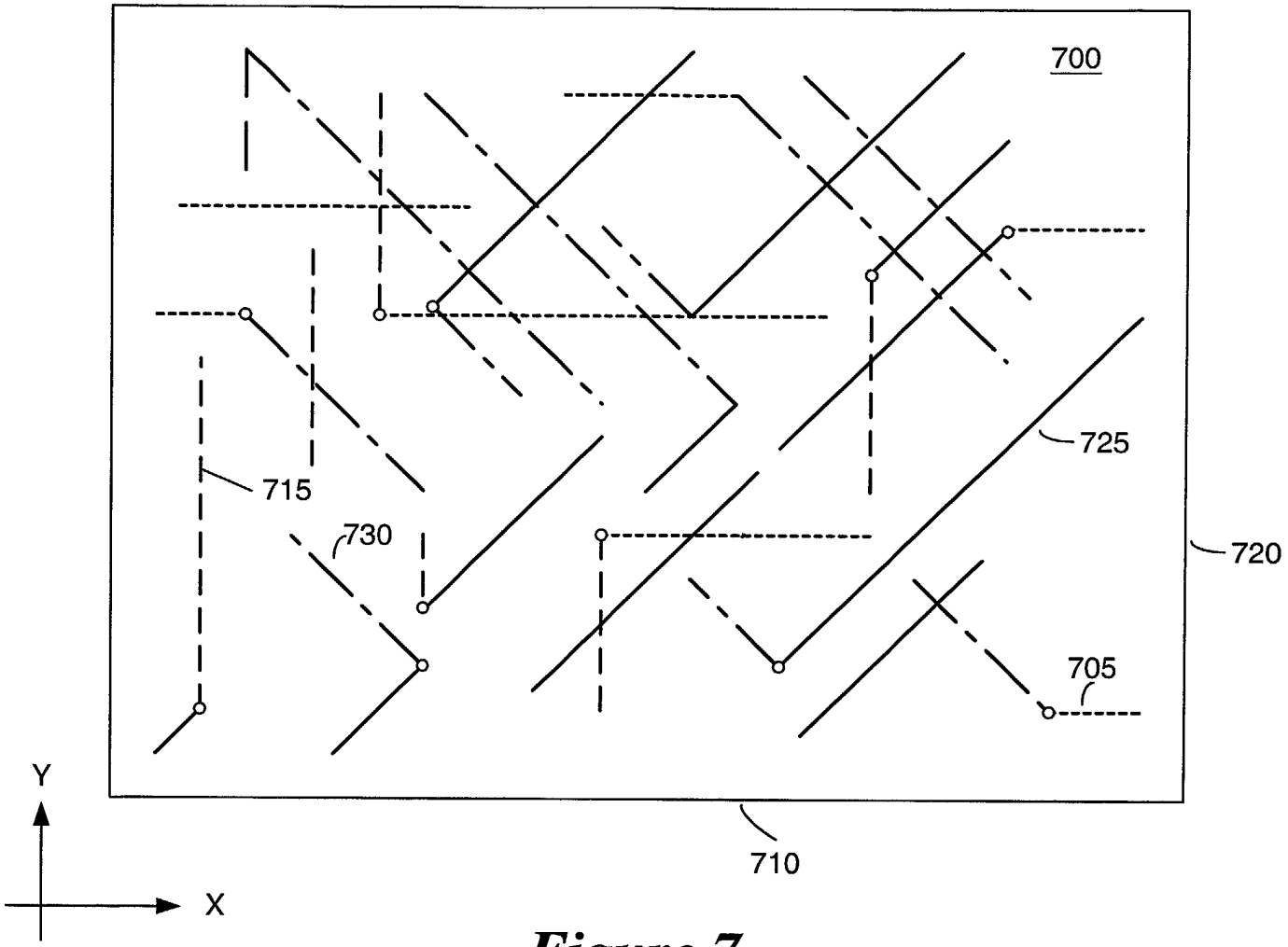

Figure 7

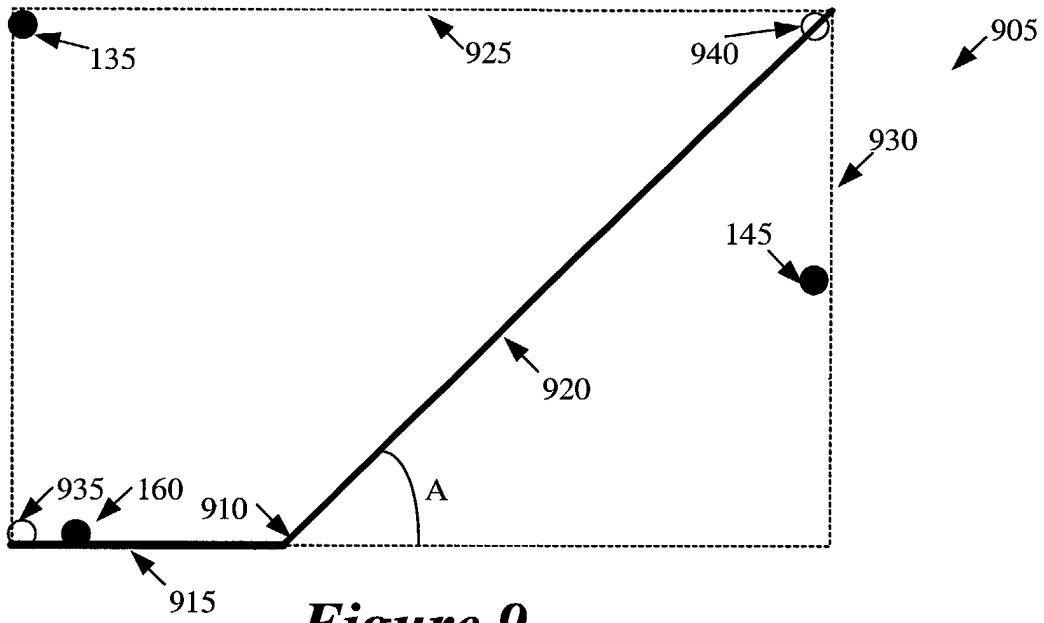

Figure 9

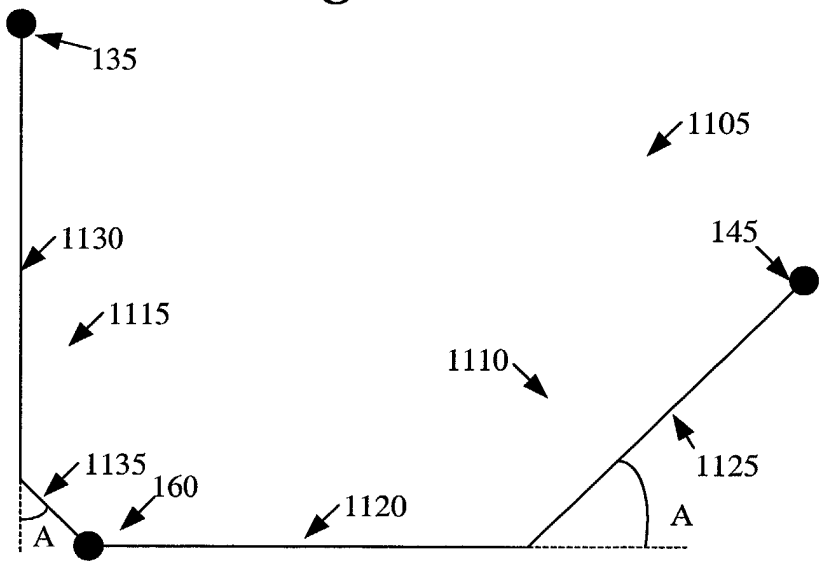

Figure 11

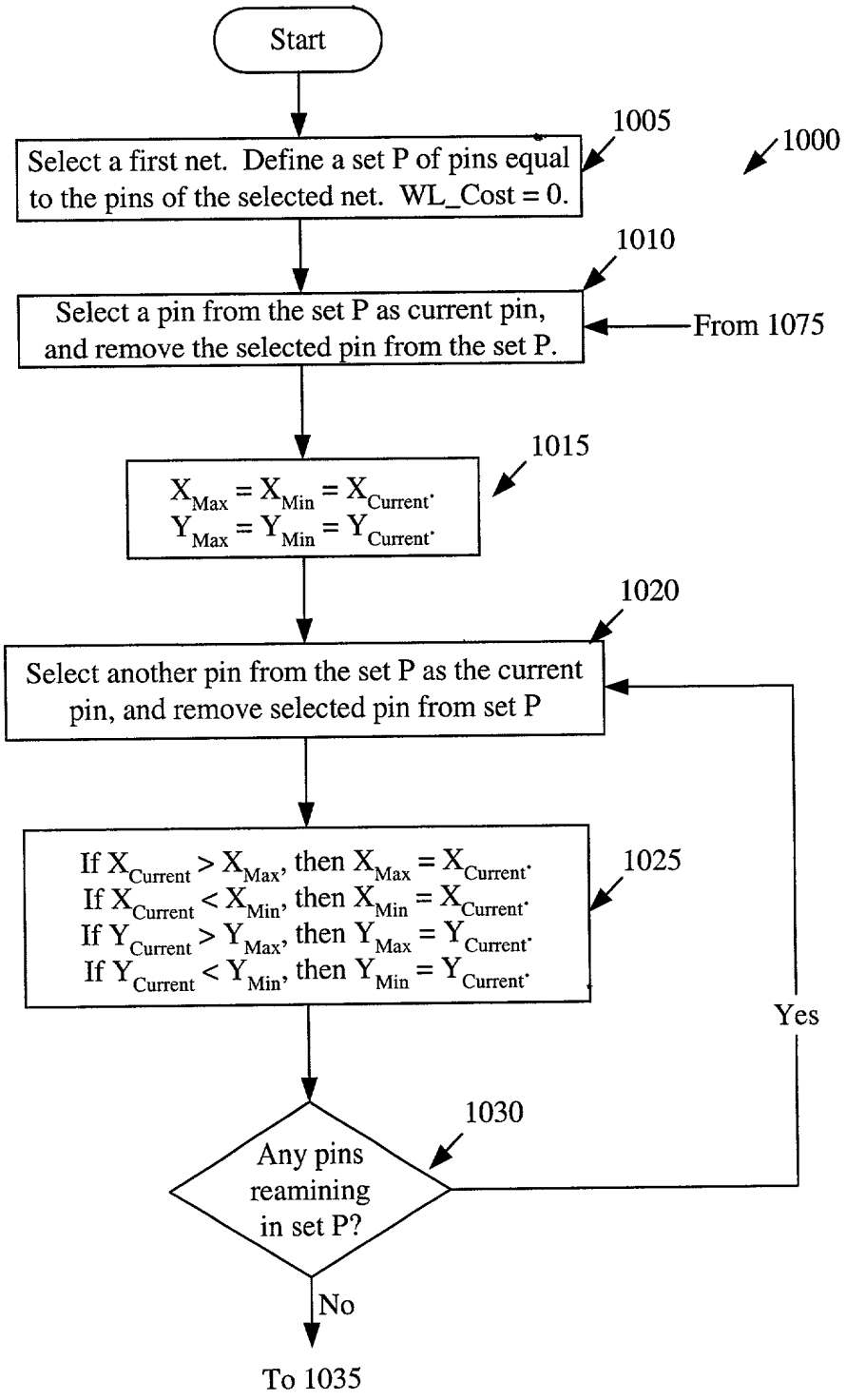

Figure 10A

Figure 10: ***Figure 10A*** / ***Figure 10B***

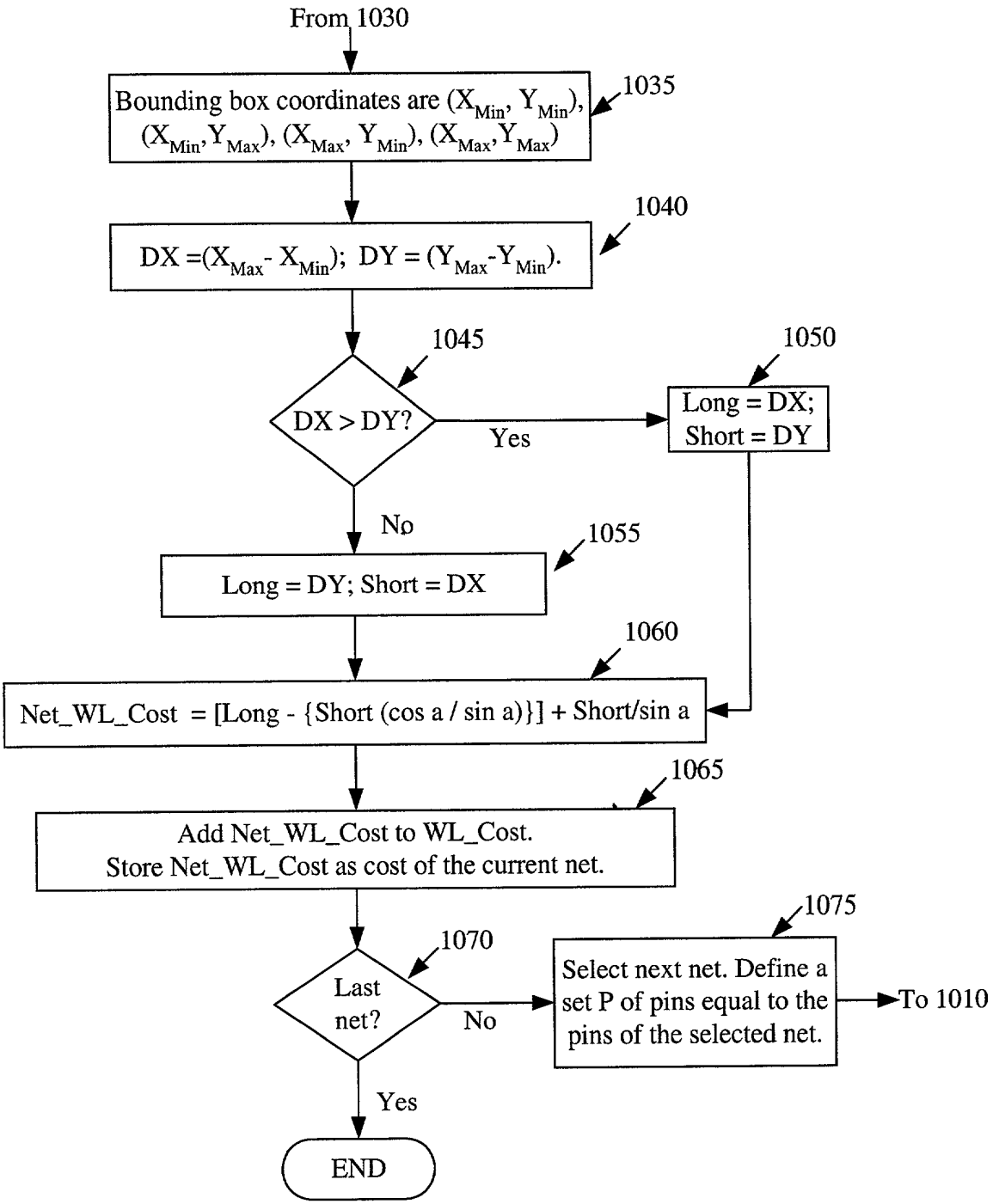
From 1030
Bounding box coordinates are (X_{Min}, Y_{Min}), (X_{Min},Y_{Max}), (X_{Max}, Y_{Min}), (X_{Max},Y_{Max})
1035
DX =(X_{Max}- X_{Min}); DY = (Y_{Max}-Y_{Min}).
1040
1045
DX > DY?
Yes
1050
Long = DX; Short = DY
No
1055
Long = DY; Short = DX
1060
Net_WL_Cost = [Long - {Short (cos a / sin a)}] + Short/sin a
1065
Add Net_WL_Cost to WL_Cost.
Store Net_WL_Cost as cost of the current net.
1070
Last net?
No
1075
Select next net. Define a set P of pins equal to the pins of the selected net.
To 1010
Yes
END

Figure 10B

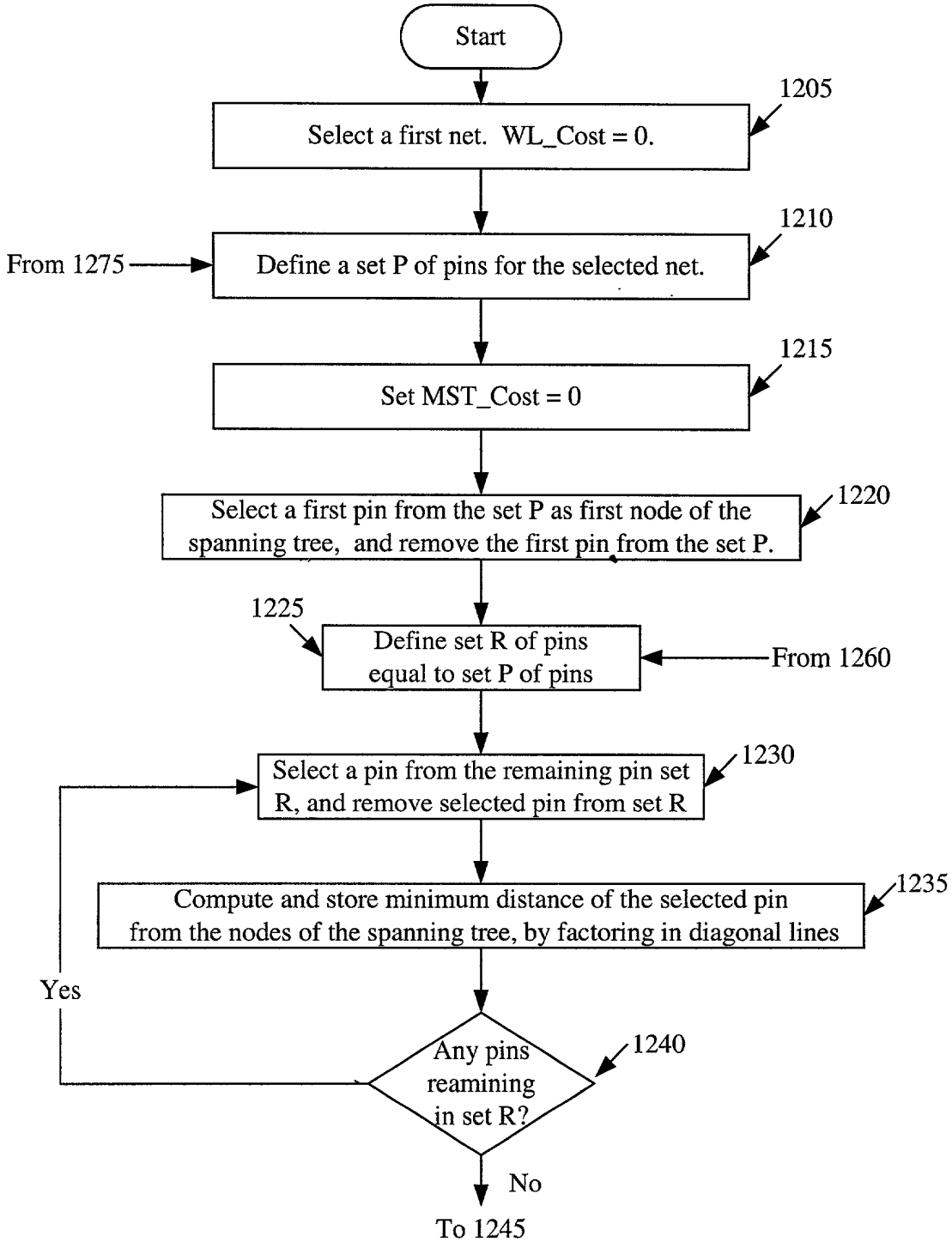

Figure 12A

Figure 12: ***Figure 12A*** / ***Figure 12B***

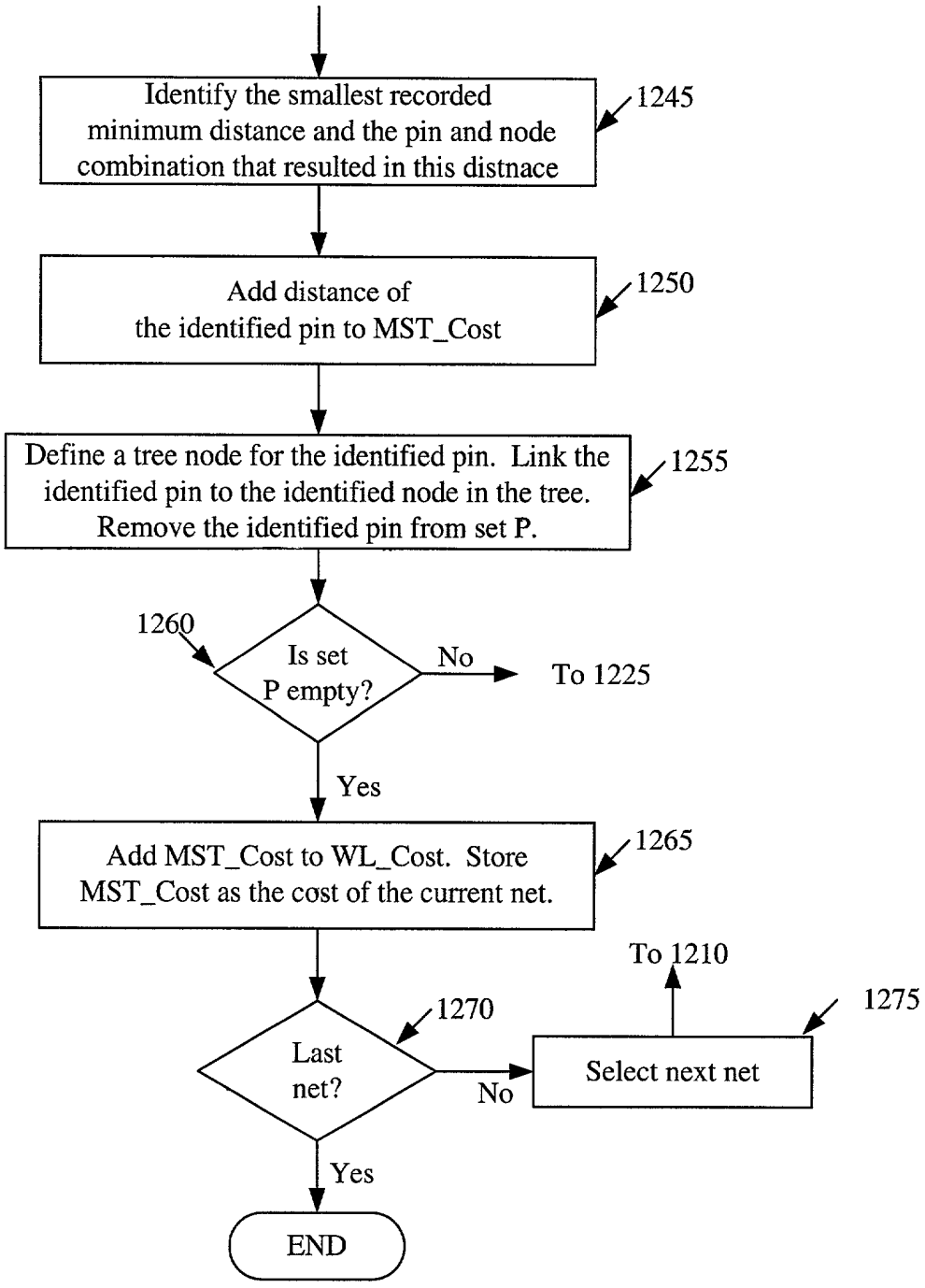
Identify the smallest recorded minimum distance and the pin and node combination that resulted in this distnace
1245
Add distance of the identified pin to MST_Cost
1250
Define a tree node for the identified pin. Link the identified pin to the identified node in the tree. Remove the identified pin from set P.
1255
1260
Is set P empty?
No
To 1225
Yes
Add MST_Cost to WL_Cost. Store MST_Cost as the cost of the current net.
1265
To 1210
1270
1275
Last net?
No
Select next net
Yes
END

Figure 12B

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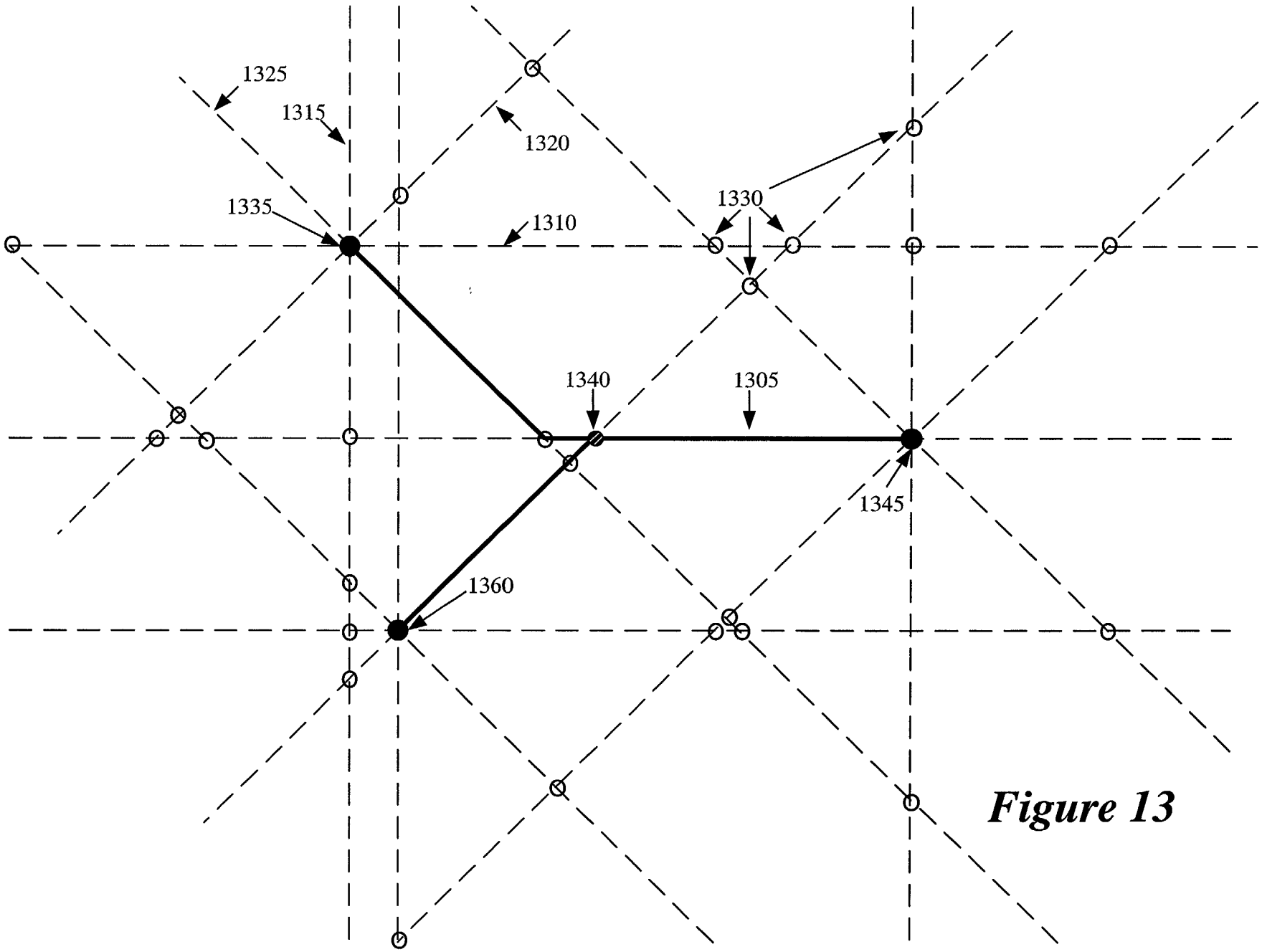

Figure 13

Docket: 0100.0100000

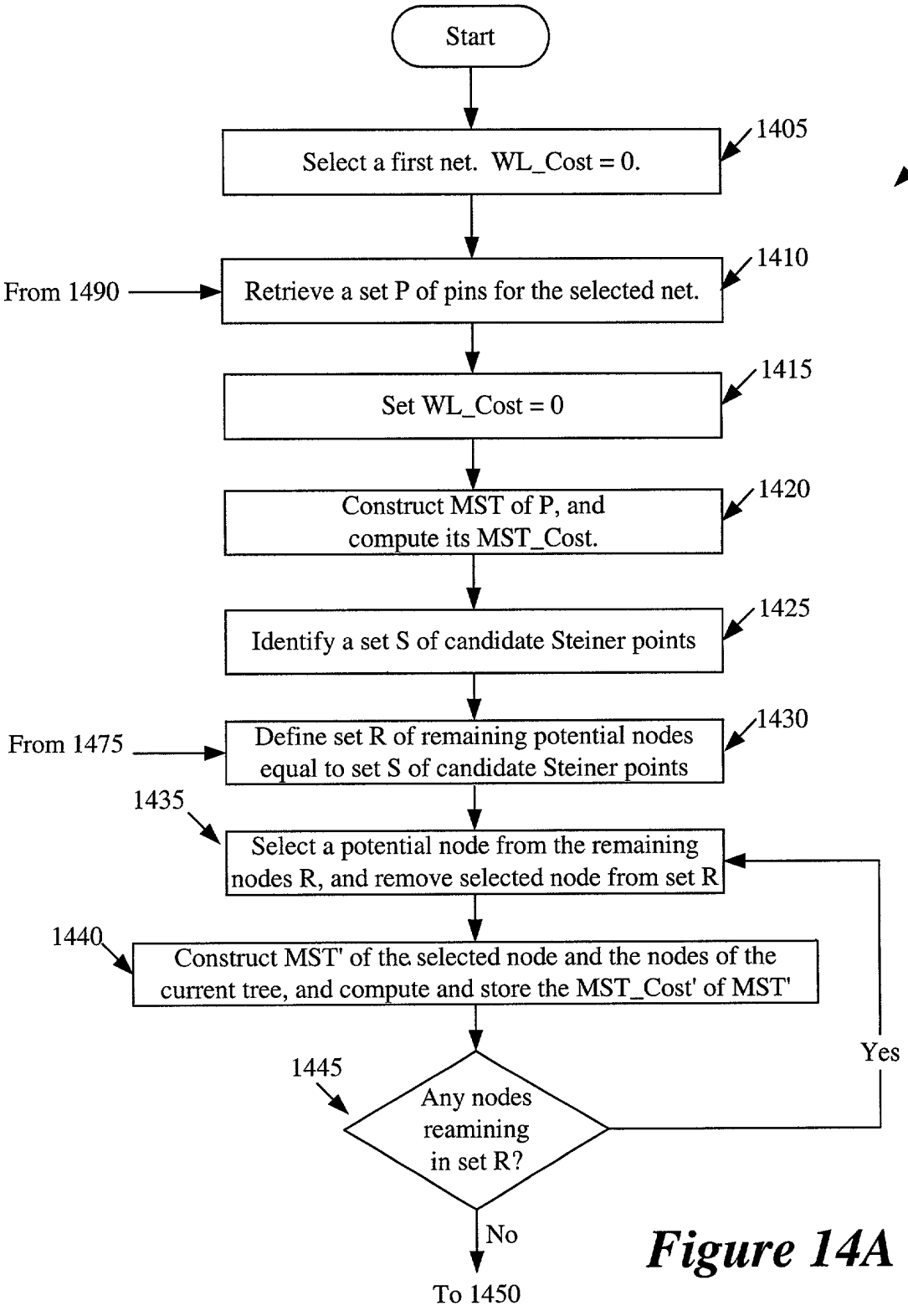

Figure 14A

Figure 14: Figure 14A / Figure 14B

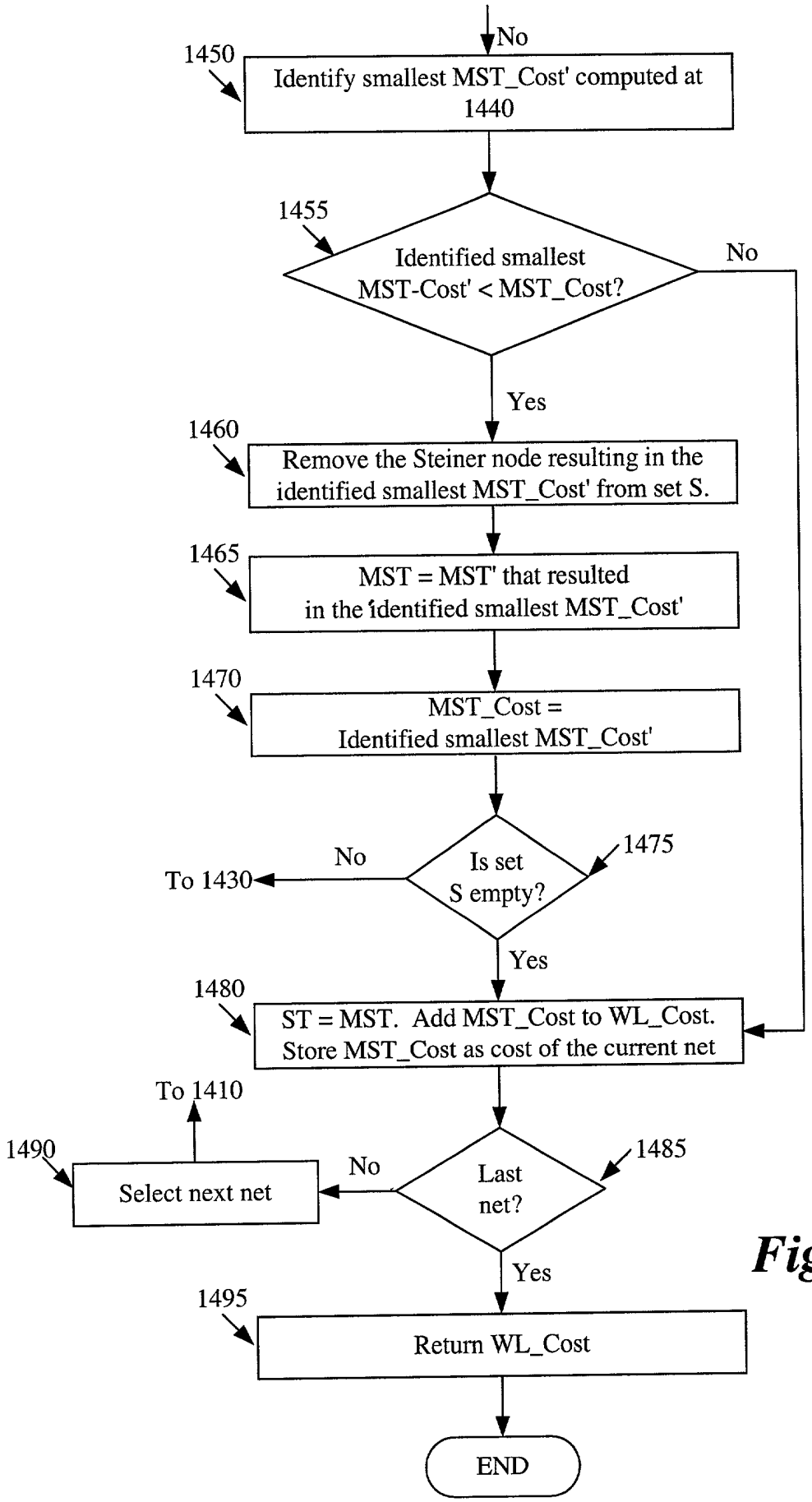
No
1450
Identify smallest MST_Cost' computed at 1440
1455
Identified smallest MST-Cost' < MST_Cost?
No
Yes
1460
Remove the Steiner node resulting in the identified smallest MST_Cost' from set S.
1465
MST = MST' that resulted in the identified smallest MST_Cost'
1470
MST_Cost = Identified smallest MST_Cost'
1475
Is set S empty?
No
To 1430
Yes
1480
ST = MST. Add MST_Cost to WL_Cost. Store MST_Cost as cost of the current net
To 1410
1490
Select next net
No
1485
Last net?
Yes
1495
Return WL_Cost
END

Figure 14B

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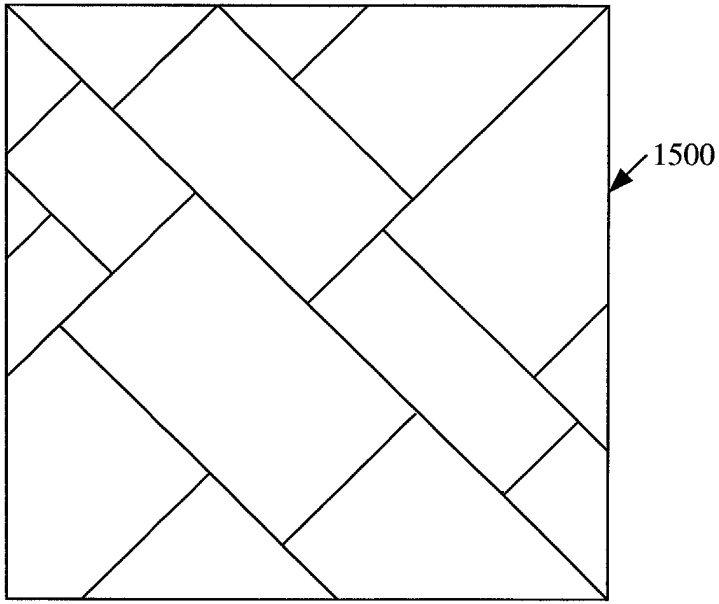

Figure 15

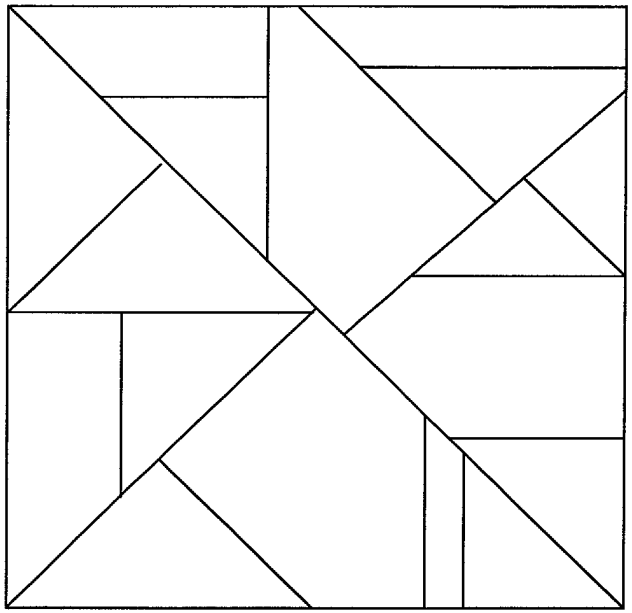

Figure 16

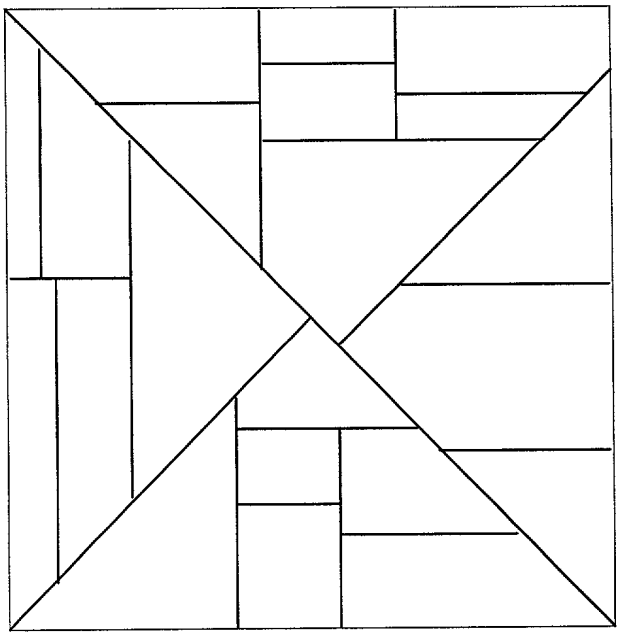

Figure 17

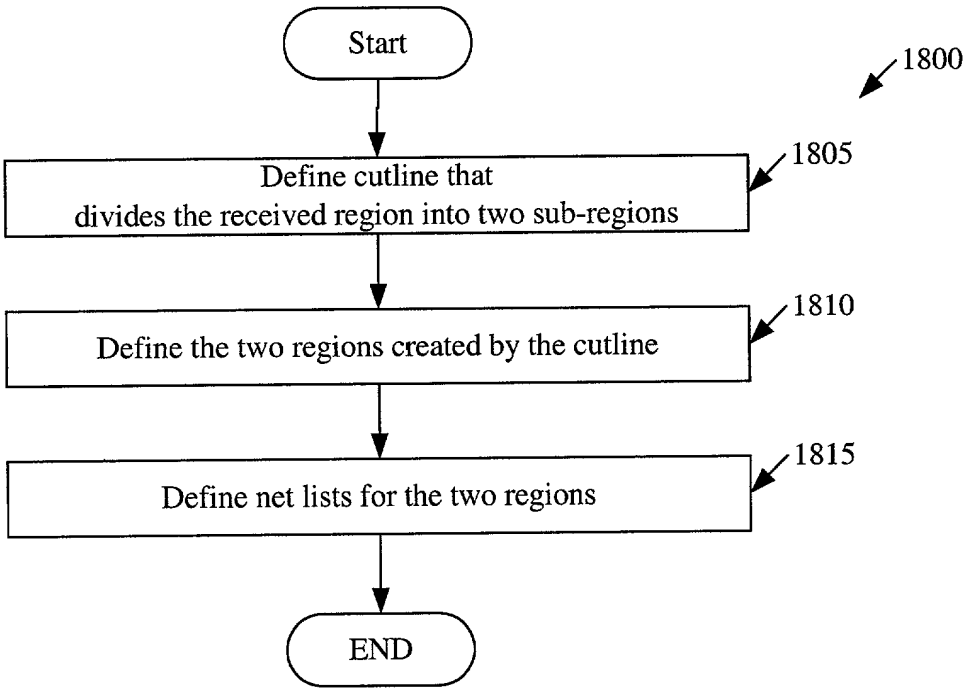

Figure 18

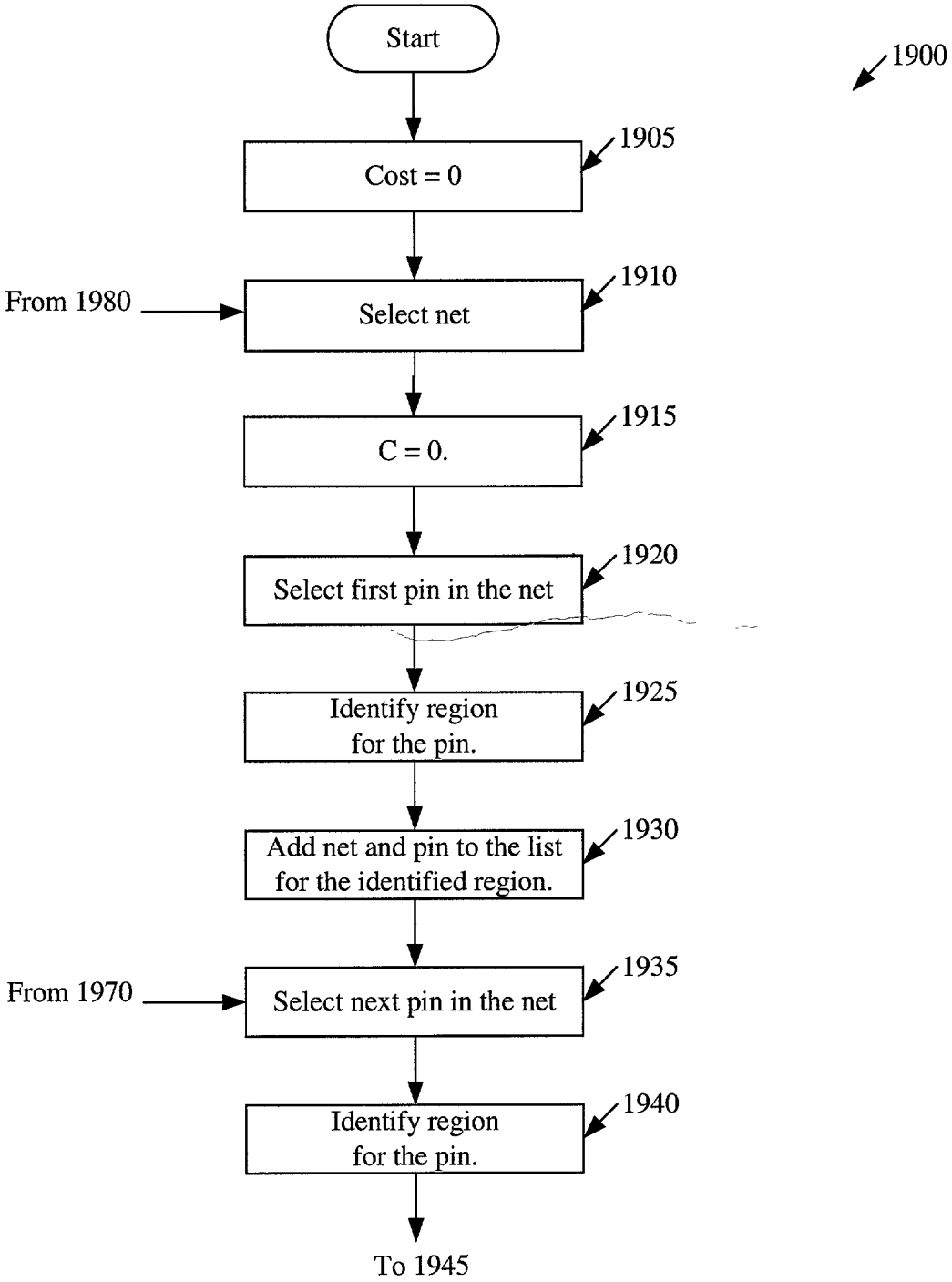

Figure 19A

Figure 19: ***Figure 19A*** / ***Figure 19B***

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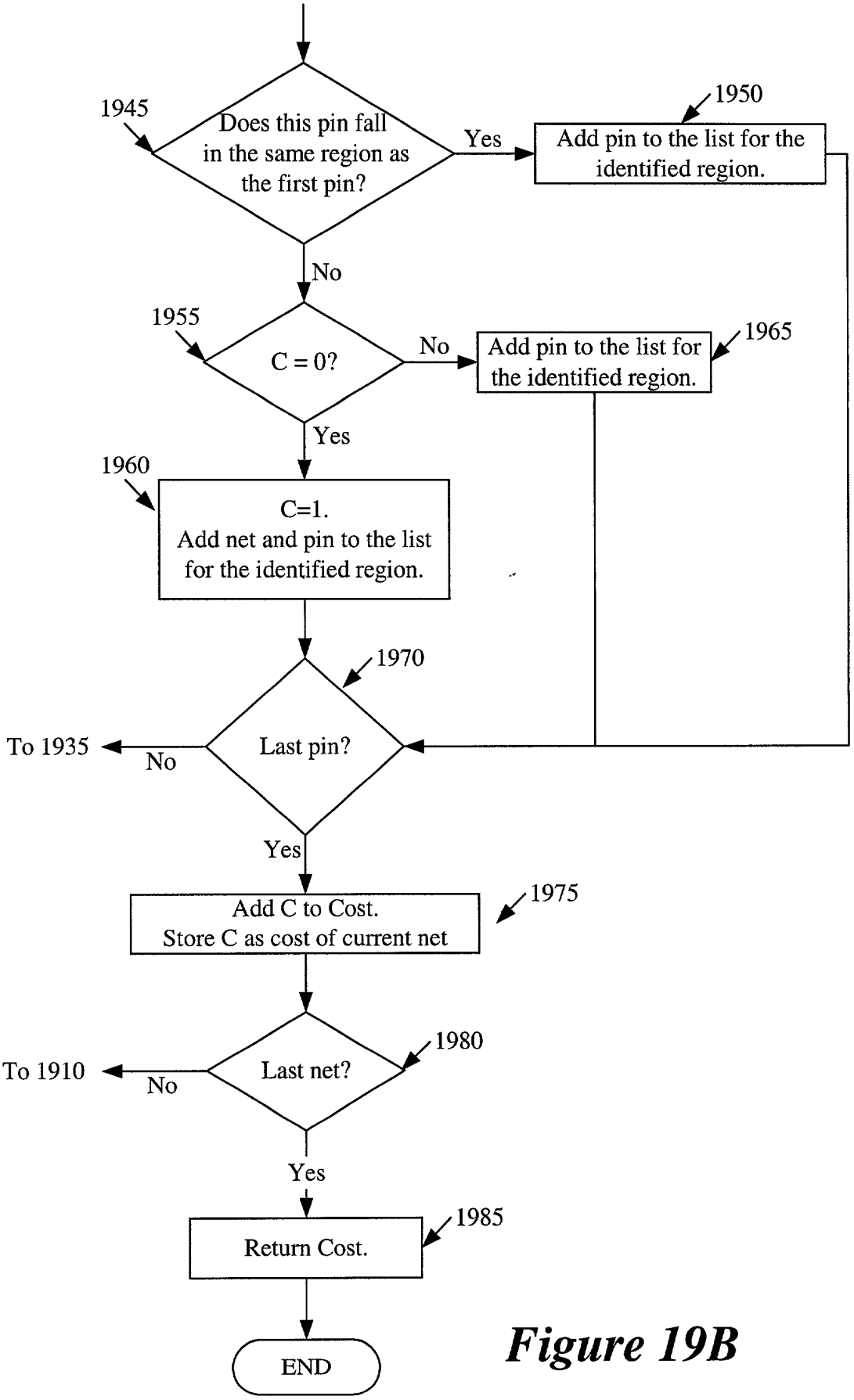

Figure 19B

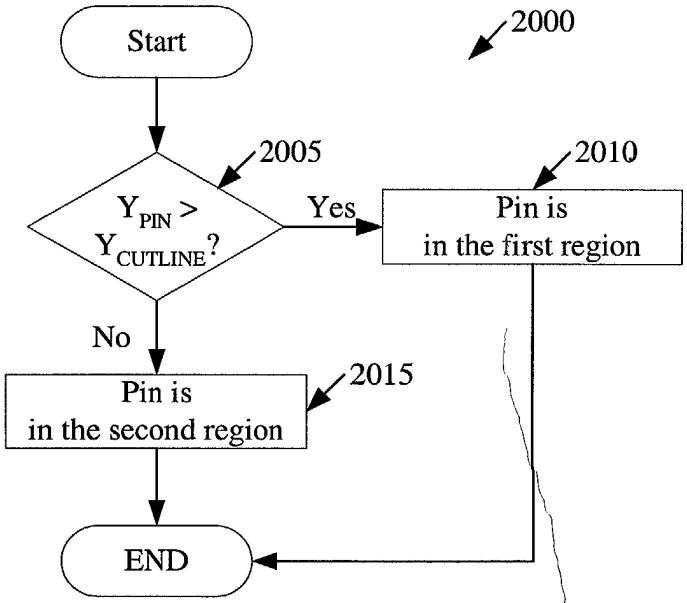

Figure 20

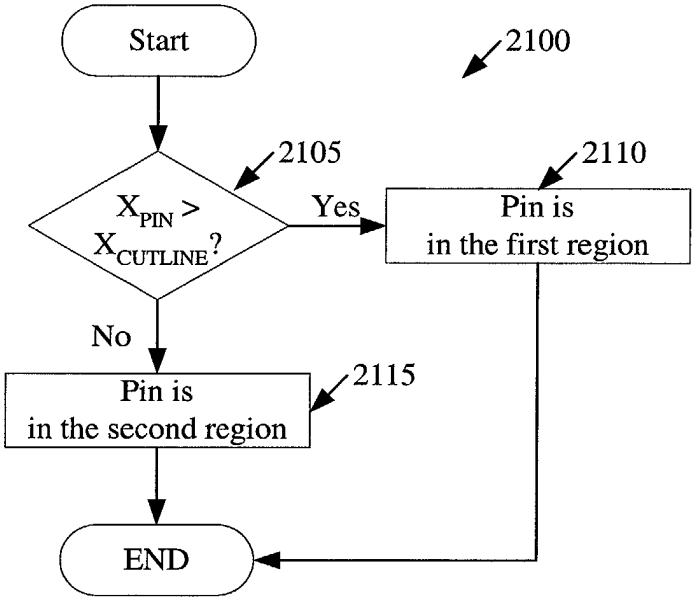

Figure 21

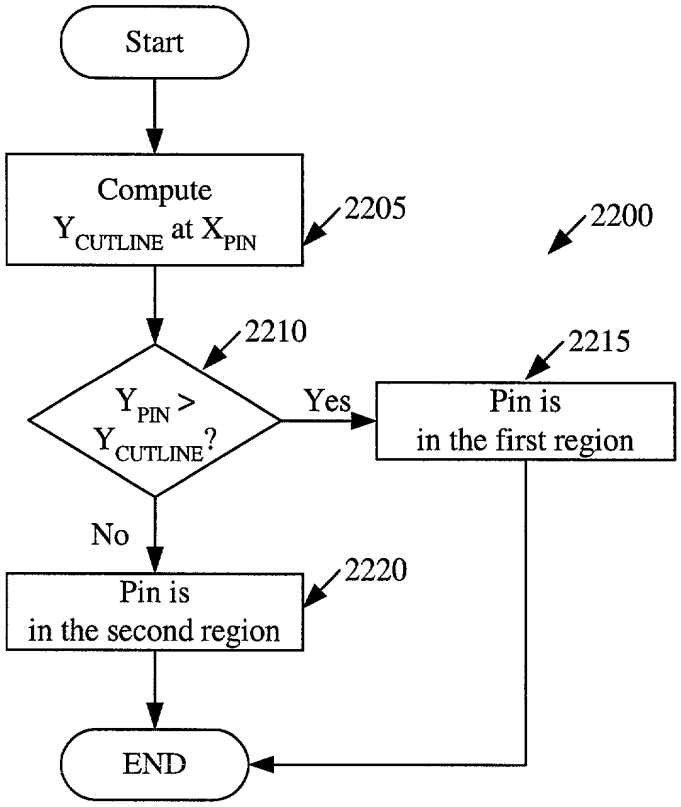

Figure 22

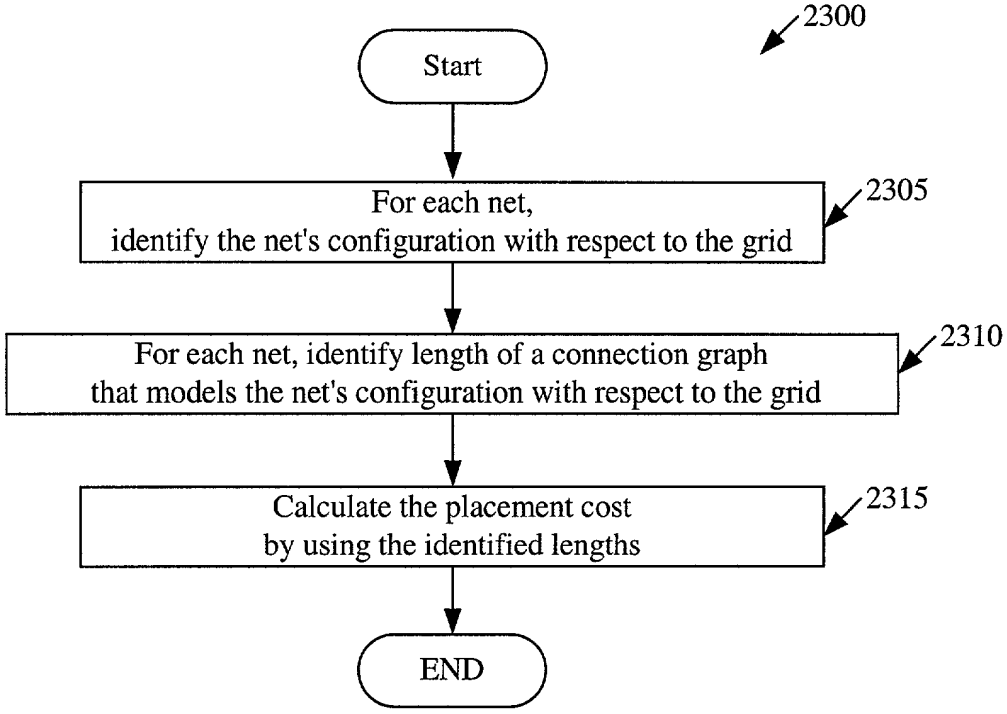

Figure 23

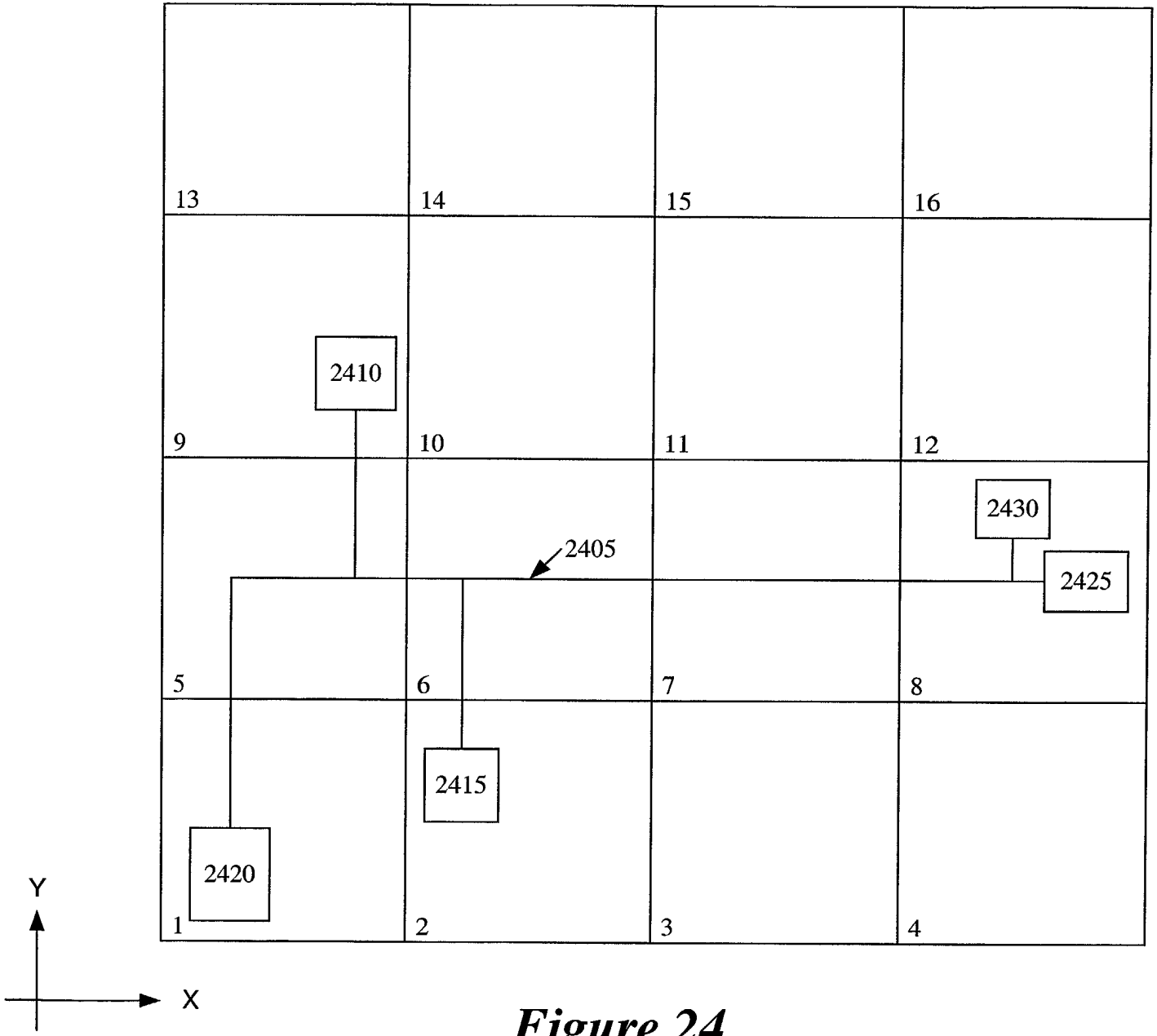

Figure 24

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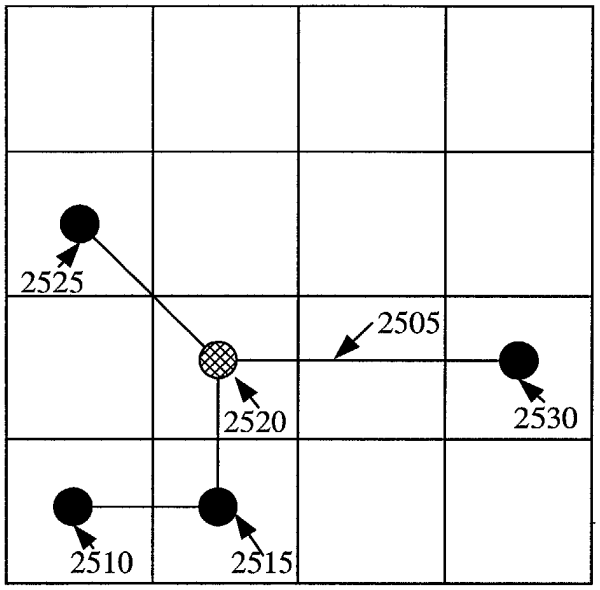

Figure 25

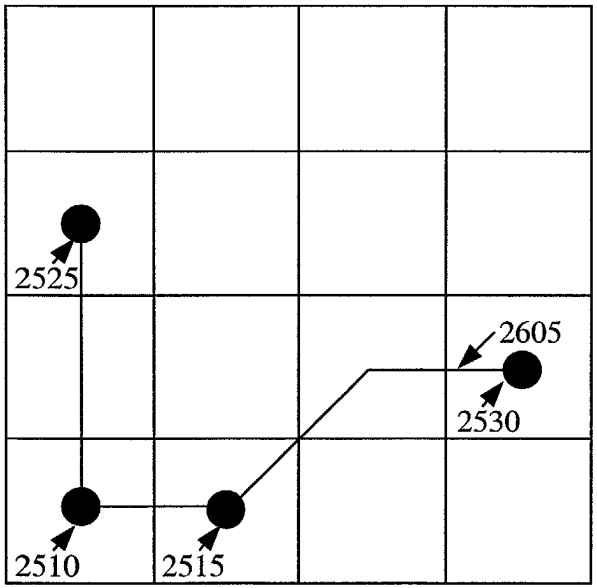

Figure 26

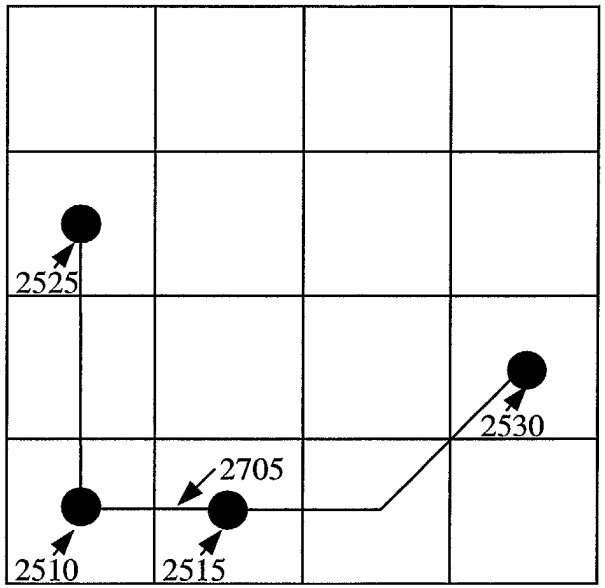

Figure 27

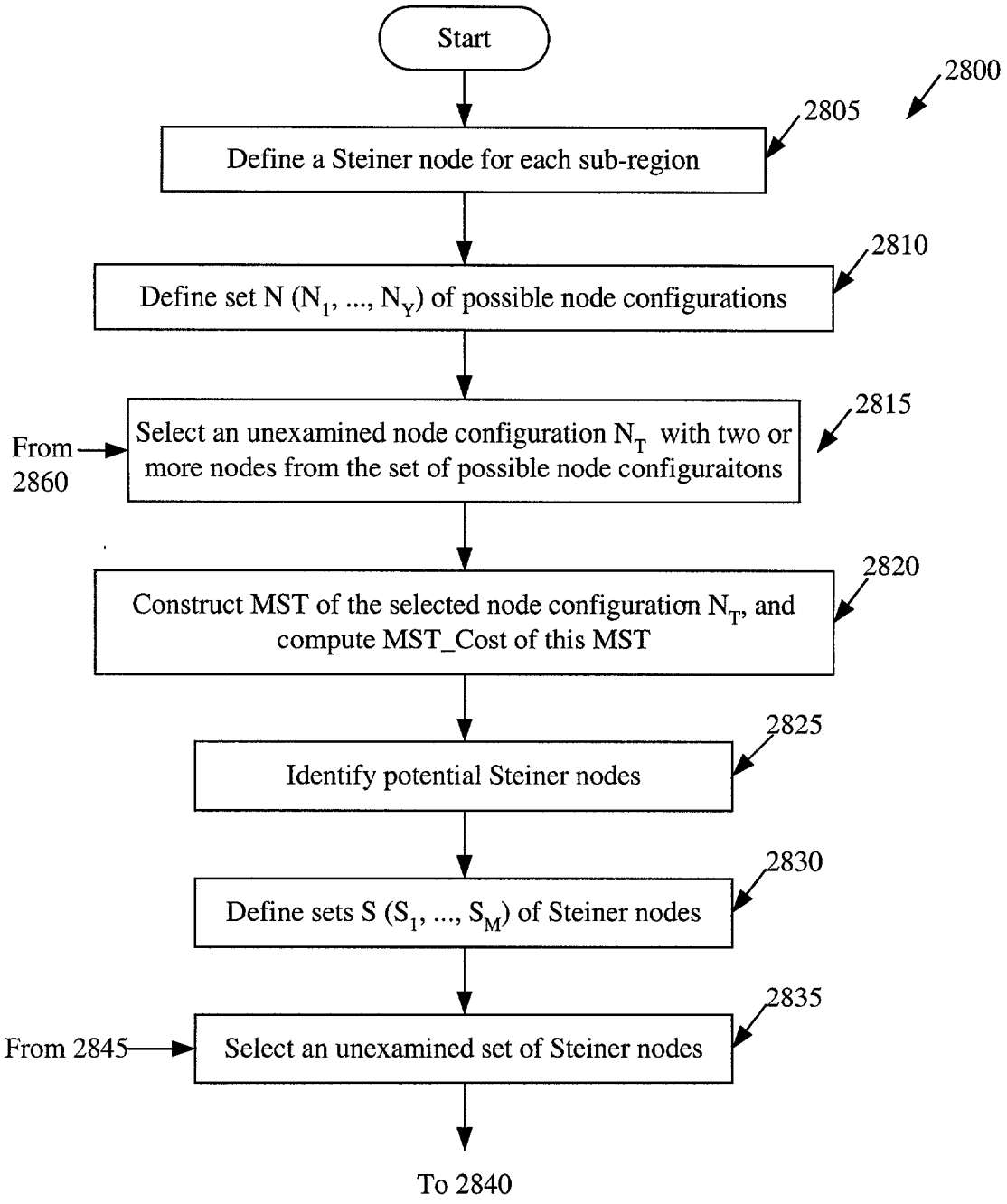

Figure 28A

Figure 28: ***Figure 28A*** / ***Figure 28B***

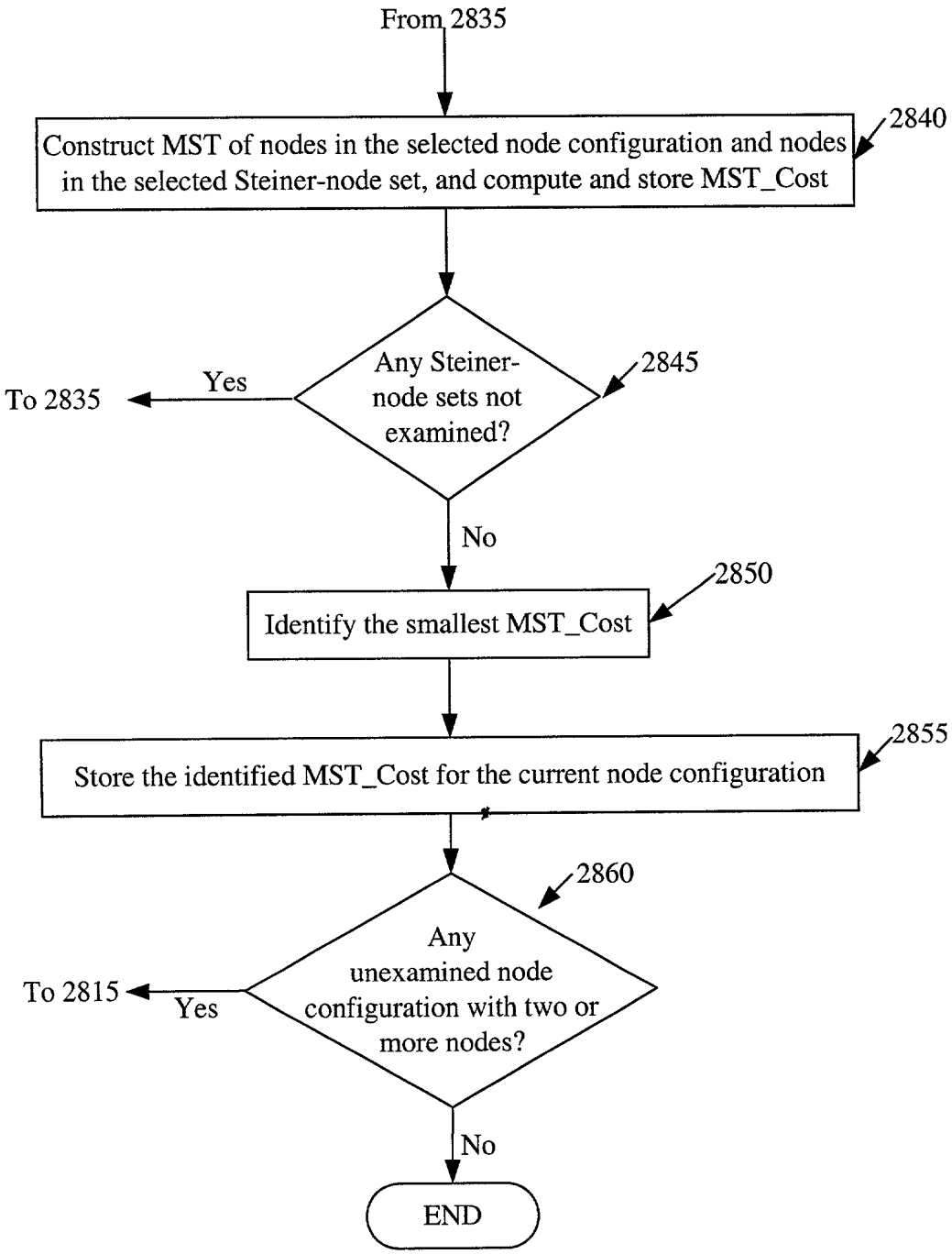
From 2835
Construct MST of nodes in the selected node configuration and nodes in the selected Steiner-node set, and compute and store MST_Cost
2840
Any Steiner-node sets not examined?
2845
Yes
To 2835
No
Identify the smallest MST_Cost
2850
Store the identified MST_Cost for the current node configuration
2855
Any unexamined node configuration with two or more nodes?
2860
To 2815
Yes
No
END

Figure 28B

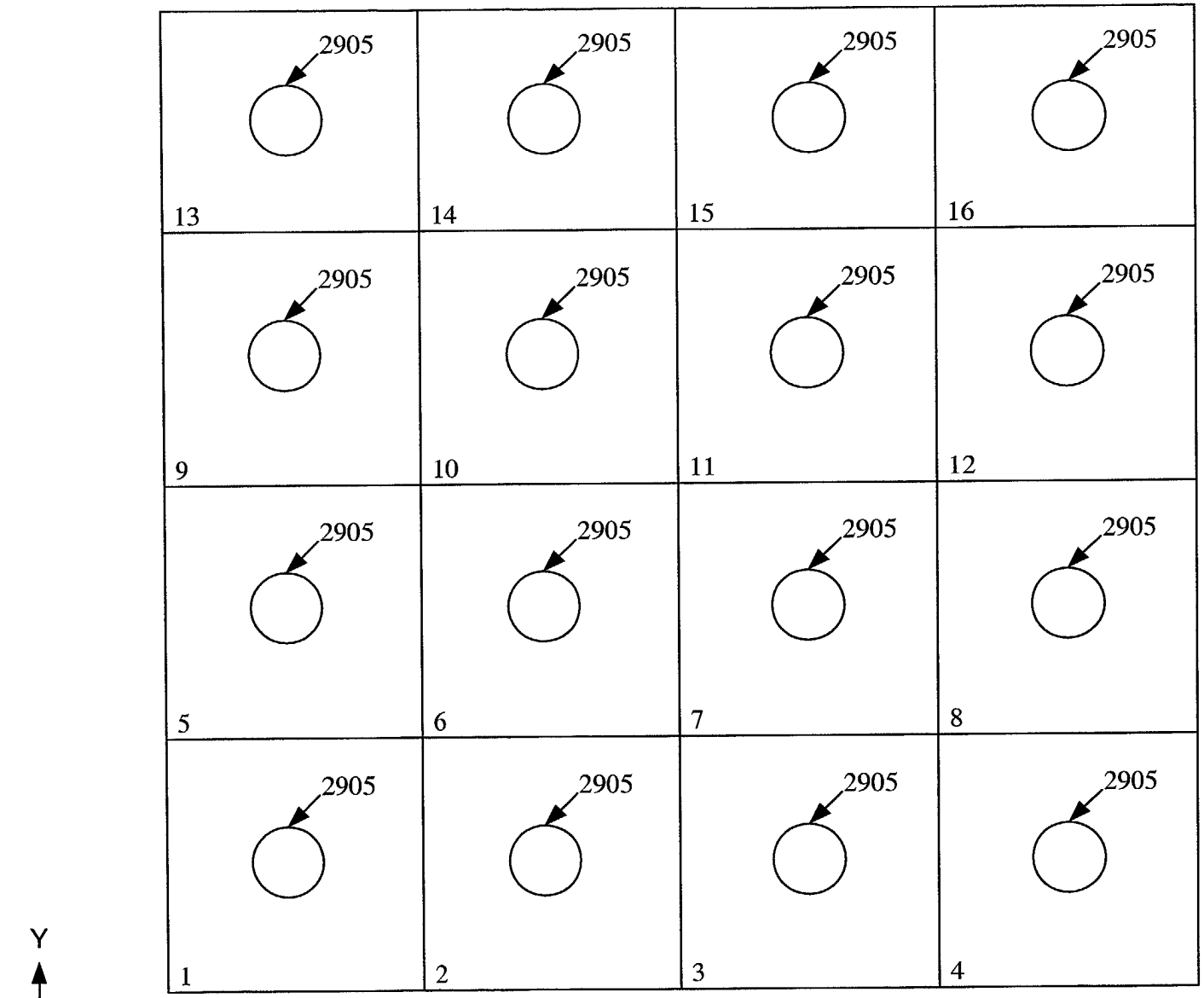

Figure 29

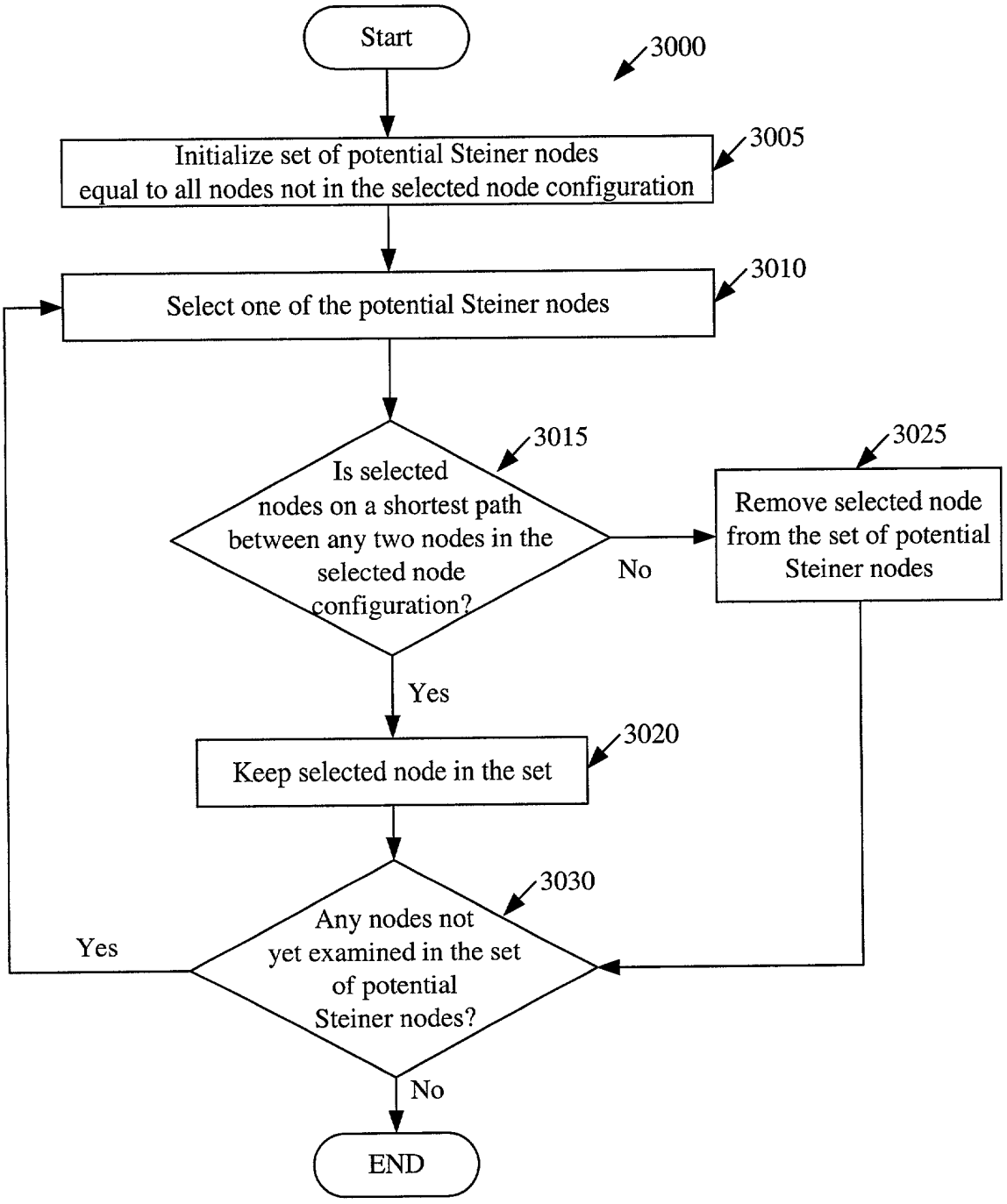
Start
3000
Initialize set of potential Steiner nodes equal to all nodes not in the selected node configuration
3005
Select one of the potential Steiner nodes
3010
Is selected nodes on a shortest path between any two nodes in the selected node configuration?
3015
No
Remove selected node from the set of potential Steiner nodes
3025
Yes
Keep selected node in the set
3020
Any nodes not yet examined in the set of potential Steiner nodes?
3030
Yes
No
END

Figure 30

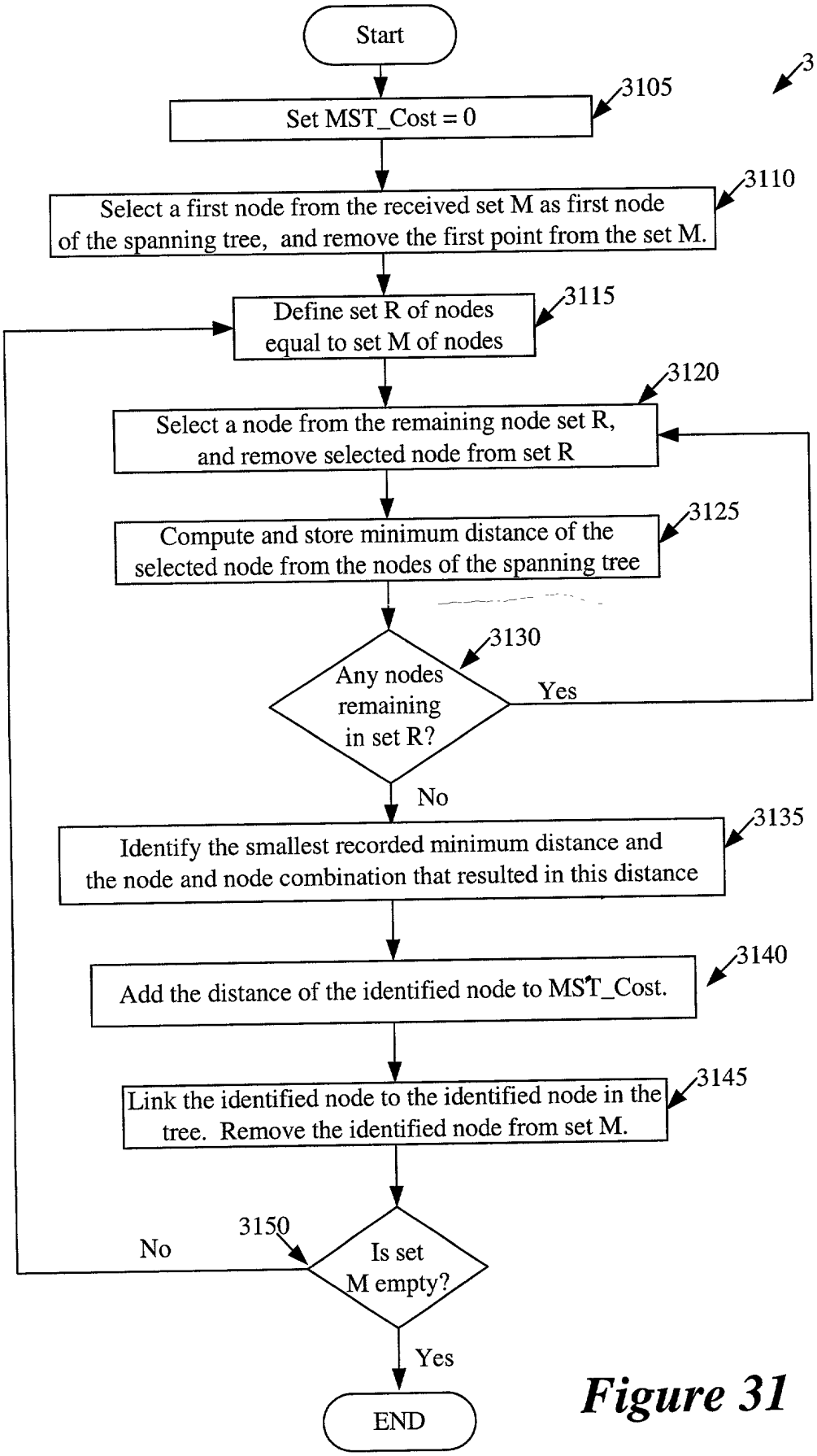
Start
3100
3105
Set MST_Cost = 0
3110
Select a first node from the received set M as first node of the spanning tree, and remove the first point from the set M.
3115
Define set R of nodes equal to set M of nodes
3120
Select a node from the remaining node set R, and remove selected node from set R
3125
Compute and store minimum distance of the selected node from the nodes of the spanning tree
3130
Any nodes remaining in set R?
Yes
No
3135
Identify the smallest recorded minimum distance and the node and node combination that resulted in this distance
3140
Add the distance of the identified node to MST_Cost.
3145
Link the identified node to the identified node in the tree. Remove the identified node from set M.
3150
Is set M empty?
No
Yes
END

Figure 31

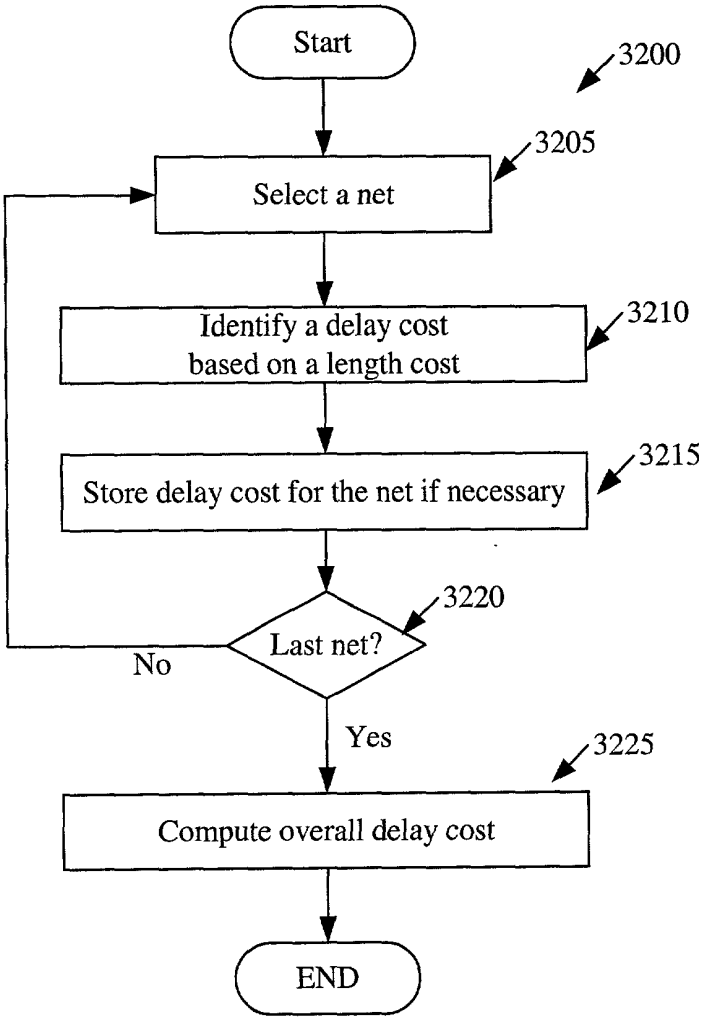
Start
3200
Select a net
3205
Identify a delay cost
based on a length cost
3210
Store delay cost for the net if necessary
3215
Last net?
3220
No
Yes
Compute overall delay cost
3225
END

Figure 32

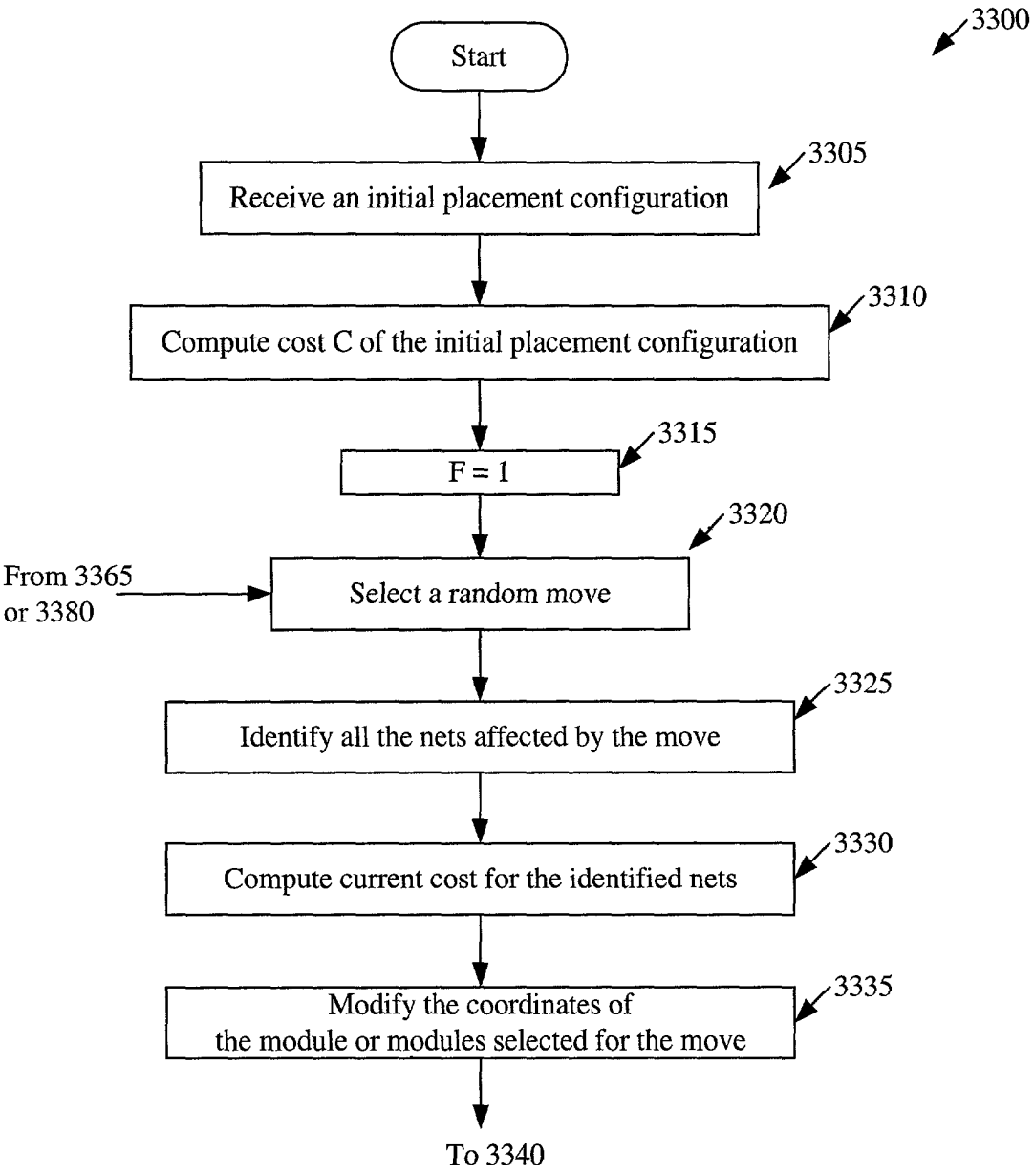

Figure 33A

Figure 33: ***Figure 33A*** / ***Figure 33B***

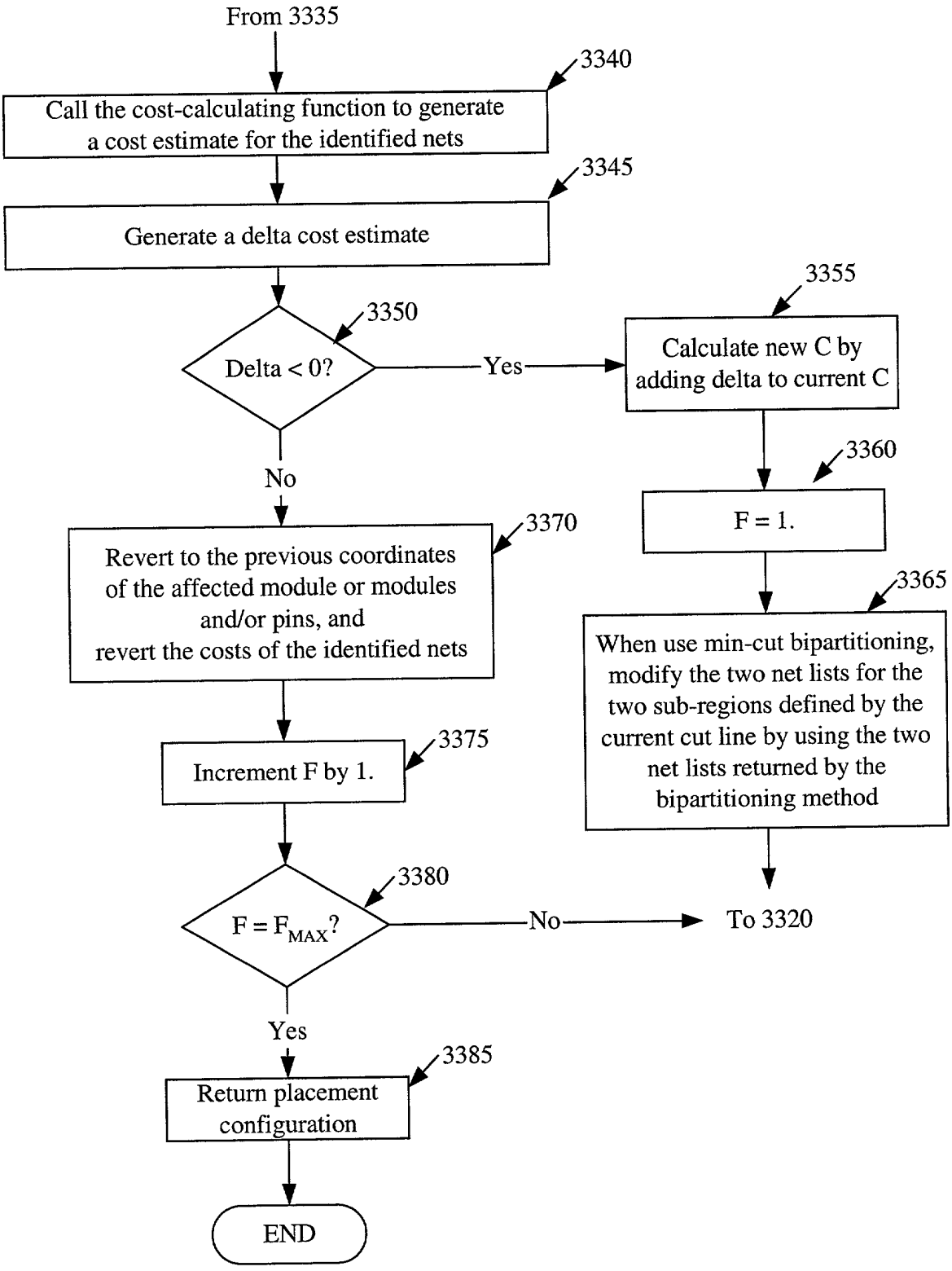
From 3335
3340
Call the cost-calculating function to generate a cost estimate for the identified nets
3345
Generate a delta cost estimate
3350
Delta < 0?
Yes
3355
Calculate new C by adding delta to current C
3360
F = 1.
3365
When use min-cut bipartitioning, modify the two net lists for the two sub-regions defined by the current cut line by using the two net lists returned by the bipartitioning method
No
3370
Revert to the previous coordinates of the affected module or modules and/or pins, and revert the costs of the identified nets
3375
Increment F by 1.
3380
F = F_MAX?
No
To 3320
Yes
3385
Return placement configuration
END

Figure 33B

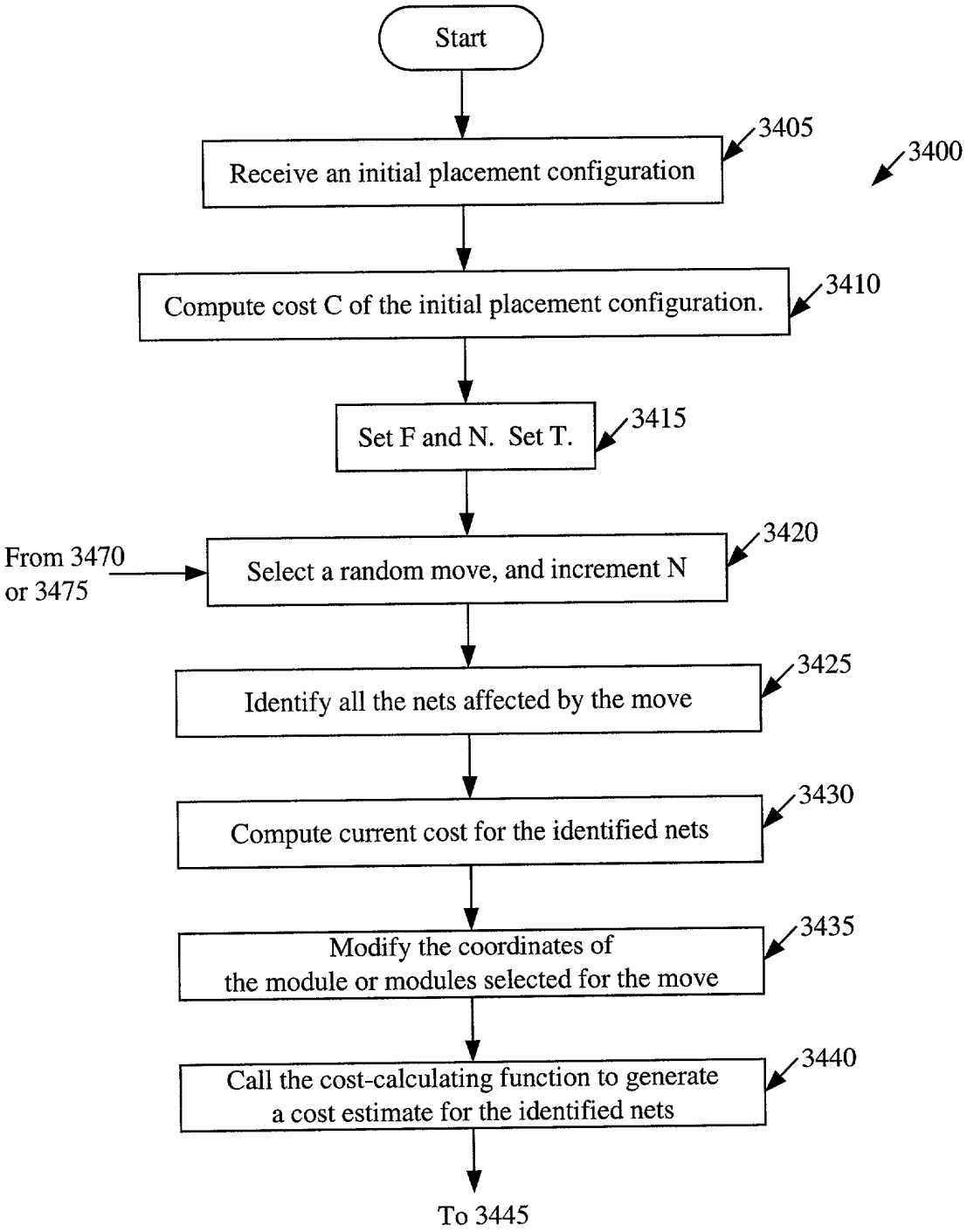

Figure 34A

Figure 34: Figure 34A / Figure 34B

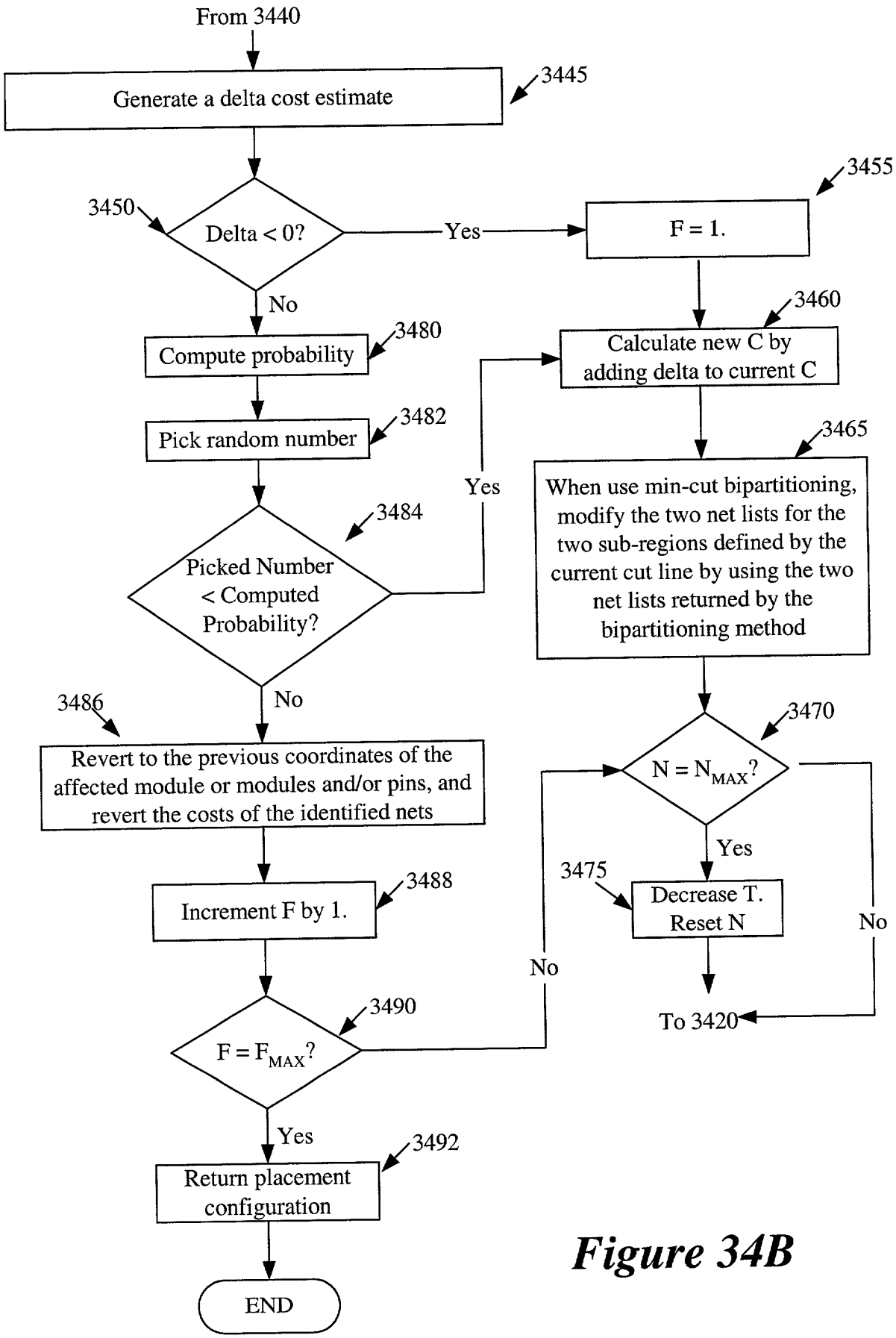
From 3440
Generate a delta cost estimate
3445
3450
Delta < 0?
Yes
3455
F = 1.
No
3460
Calculate new C by adding delta to current C
3480
Compute probability
3482
Pick random number
3465
When use min-cut bipartitioning, modify the two net lists for the two sub-regions defined by the current cut line by using the two net lists returned by the bipartitioning method
3484
Picked Number < Computed Probability?
Yes
No
3486
Revert to the previous coordinates of the affected module or modules and/or pins, and revert the costs of the identified nets
3470
N = N_MAX?
Yes
3475
Decrease T. Reset N
No
To 3420
3488
Increment F by 1.
No
3490
F = F_MAX?
Yes
3492
Return placement configuration
END

Figure 34B

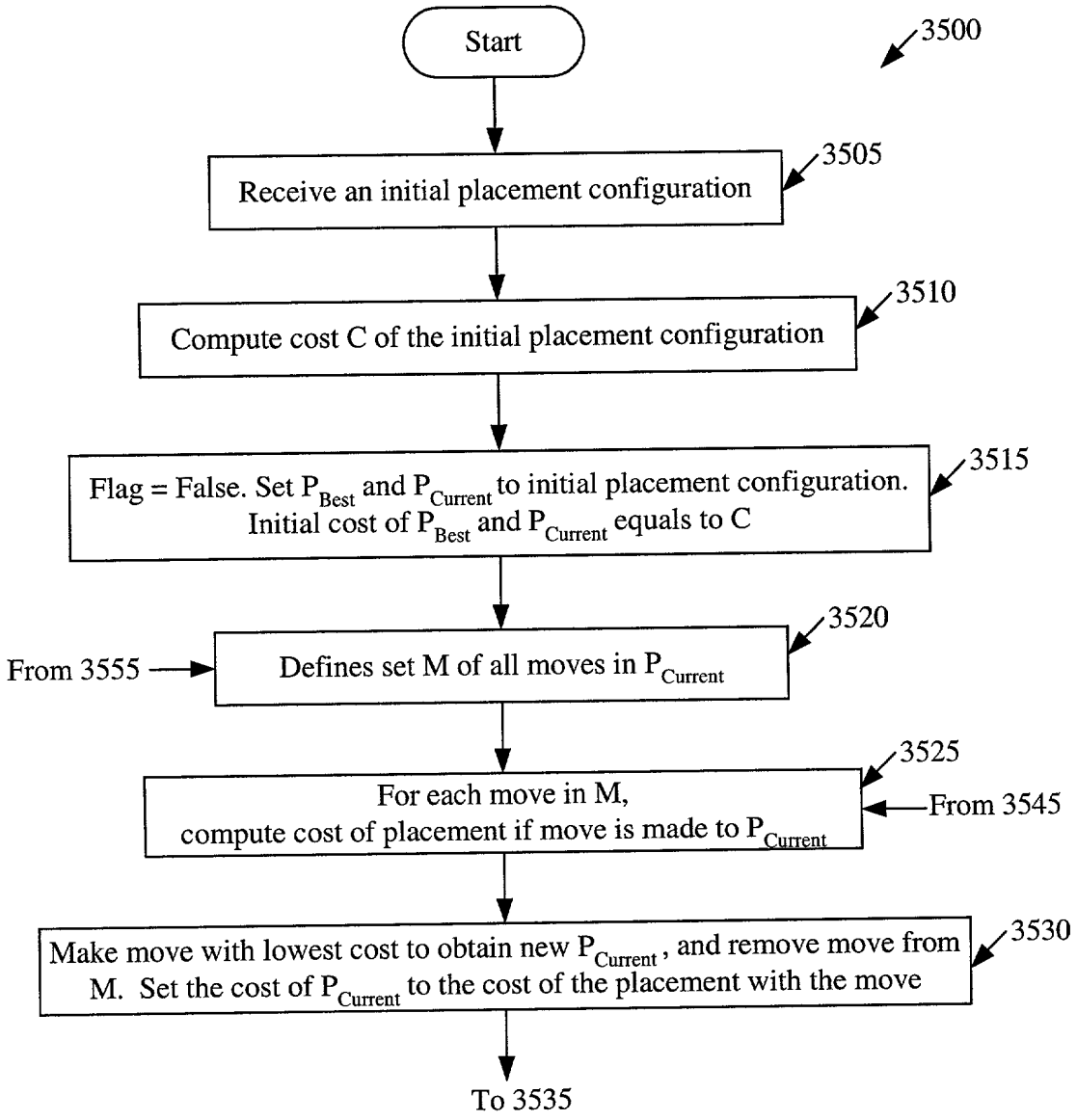

Figure 35A

Figure 35: Figure 35A / Figure 35B

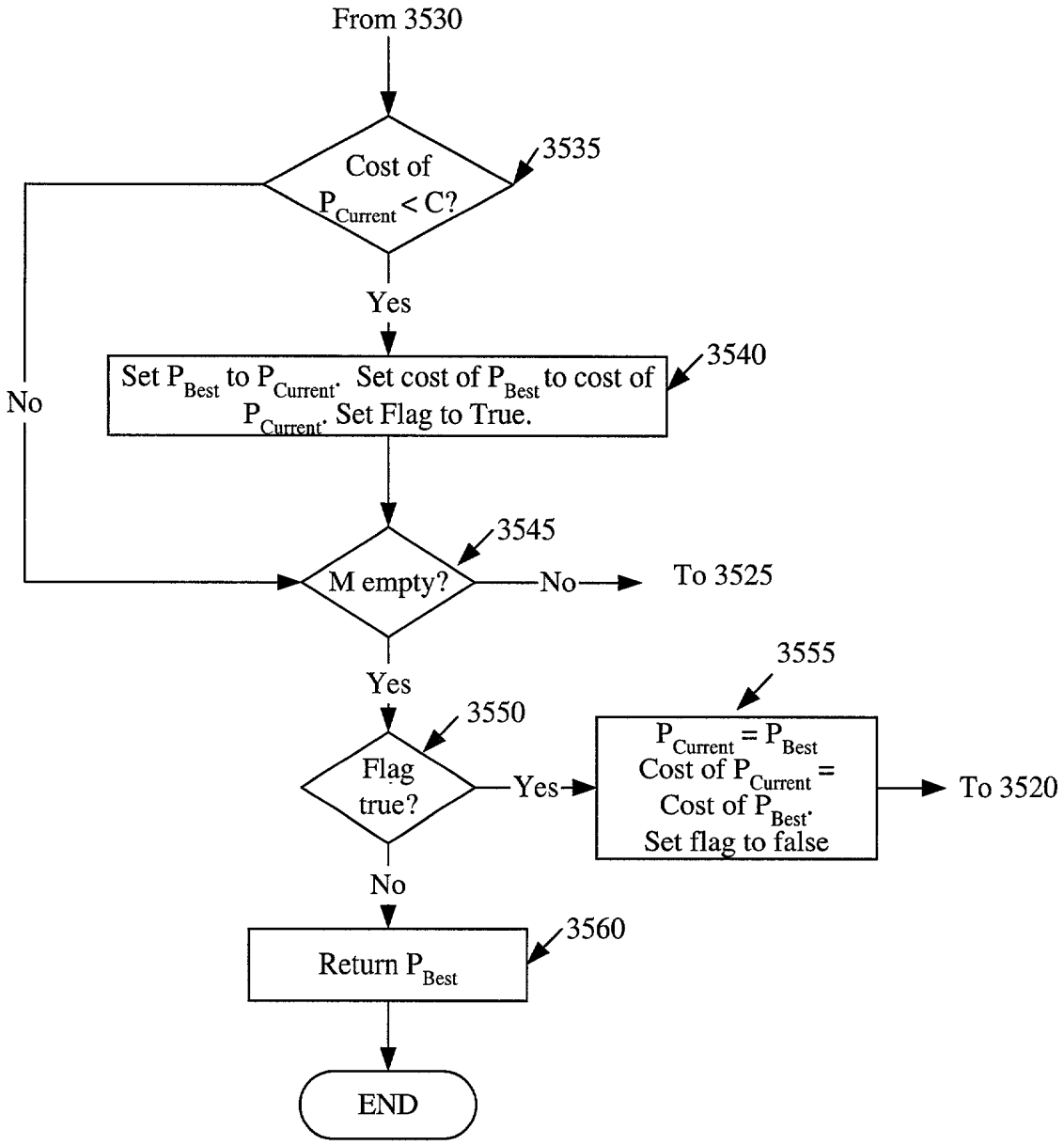
From 3530
Cost of $P_{Current} < C$?
3535
Yes
No
Set P_{Best} to $P_{Current}$. Set cost of P_{Best} to cost of $P_{Current}$. Set Flag to True.
3540
M empty?
3545
No
To 3525
Yes
Flag true?
3550
Yes
$P_{Current} = P_{Best}$ Cost of $P_{Current}$ = Cost of P_{Best}. Set flag to false
3555
To 3520
No
Return P_{Best}
3560
END

Figure 35B

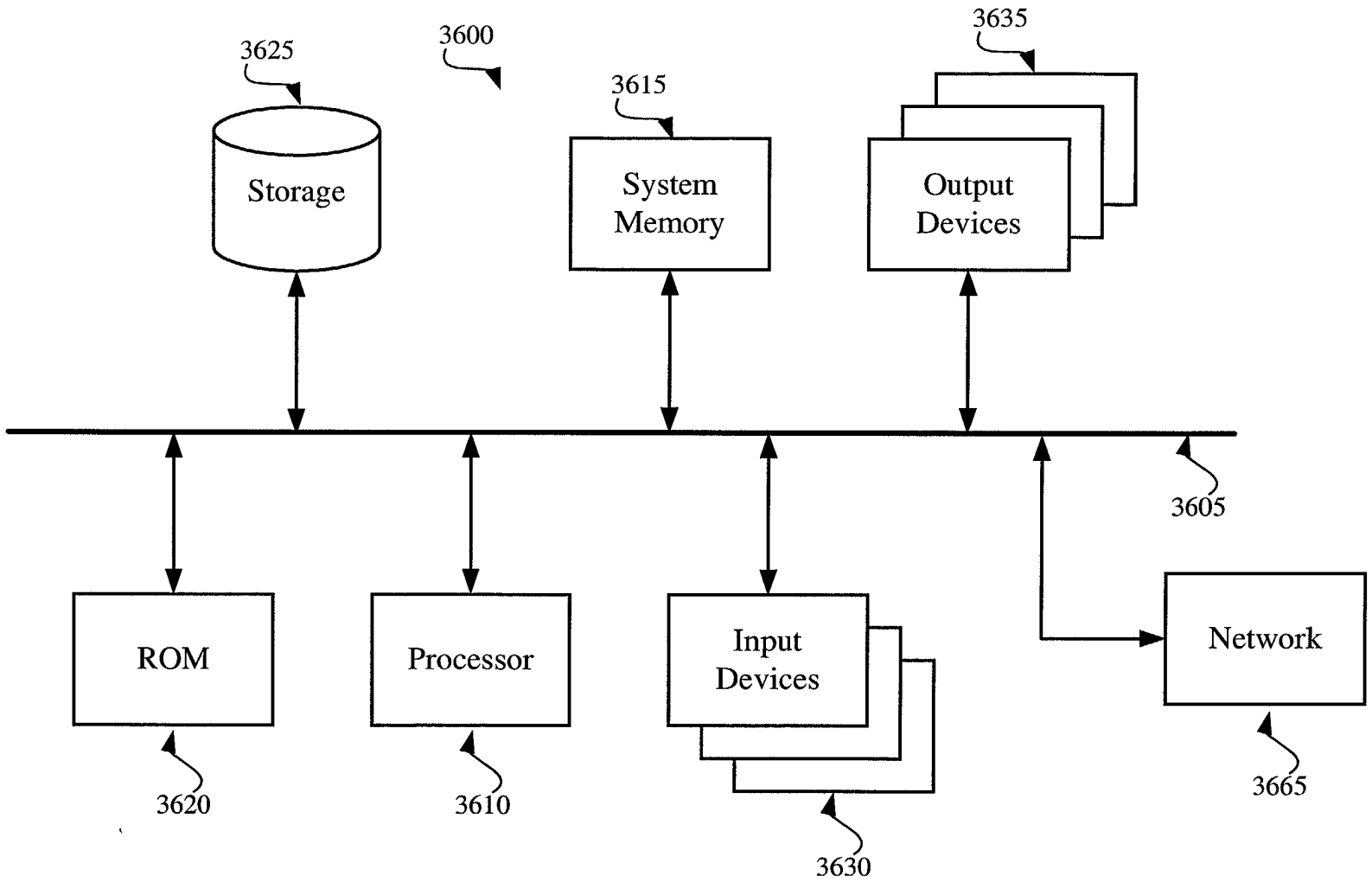
3625
3600
3635
3615
Storage
System Memory
Output Devices
3605
ROM
Processor
Input Devices
Network
3620
3610
3630
3665

Figure 36